COMSPHERE 6700 SERIES NETWORK MANAGEMENT SYSTEM

USER'S GUIDE

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PARADYNE™

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Glossary

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About This Guide

Document Purpose and Intended Audience

This guide describes how to install and use the COMSPHERE 6700 Series Network Management System (NMS).

You must have a basic understanding of modems and their operation, be knowledgeable about data communications, and familiar with Microsoft Windows terminology and conventions.

Document Summary

Section	Description
Chapter 1	*Introduction.* Provides an overview of NMS, NMS features and requirements.
Chapter 2	*Installation.* Provides instructions for installing NMS.
Chapter 3	*Start-Up.* Provides information about starting NMS after it has been installed.
Chapter 4	*Configuration.* Provides information on using Configuration to set up and maintain user-supplied network information.
Chapter 5	*Displays.* Provides information on using Displays to access the different views of the network, to graphically show its health.
Chapter 6	*Statistics.* Provides information on using Statistics to gather data on the utilization of the dial network resources.
Chapter 7	*Device Management.* Provides information on using Device Management to check a device's current status, test devices, inquire into a device's identification information, and establish connections.
Chapter 8	*Dial Function.* Provides information on the Dial function.
Chapter 9	*Firmware Download.* Provides information on firmware downloading for COMSPHERE 3900 Series devices.

Section	**Description**
Chapter 10	*Reports.* Provides information on using Reports to generate standard reports such as alert history, device and network configuration, device configuration options, network hierarchy, and alert control.
Chapter 11	*Session.* Provides information on using Session to change users without disturbing any open NMS windows, logging off NMS while keeping the main program in memory, or shutting down NMS.
Chapter 12	*Platform/Network Performance Monitor.* Provides procedures for using the Platform/Network Performance Monitor.
Chapter 13	*Hard Disk and System Recommendations.* Provides information on the hard disk and system recommendations.
Appendix A	*NMS Windows Conventions.* Provides information about Online Help and the conventions used with NMS.
Appendix B	*Record and Device Locks.* Describes record and device locking.
Appendix C	*Cabling Requirements.* Describes the required and optional adapters and cabling.
Appendix D	*Data Input Sheets.* Contains blank input forms that can be copied and used to assist with NMS configuration.
Glossary	Defines acronyms and terms used in this document.
Index	Lists key terms, acronyms, concepts, and sections in alphabetical order.

Product-Related Documents

Document Number	Document Title
3000-A2-GA31	*COMSPHERE 3000 Series Carrier Installation Manual*
3550-A2-GB91	*COMSPHERE 3550 Series Data Service Units, Models 3510 and 3511, User's Guide*
3610-A2-GB46	*COMSPHERE 3600 Series Data Service Units, Models 3610 and 3611, User's Guide*
3610-A2-GB48	*COMSPHERE 3600 Series Data Service Units, Models 3610 and 3611, Time Division Multiplexer, Multichannel Multipoint, and Digital Bridge Options, Supplement*
3610-A2-GB49	*COMSPHERE 3600 Series Data Service Units, Models 3610 and 3611, Dial Backup Module Options Supplement*
3810-A2-GB30	*COMSPHERE 3800 Series Modems, Models 3810, 3811, and 3820, User's Guide*
3910-A2-GN32	*COMSPHERE 3900 Series Modems, Models 3910 and 3911, Point-to-Point/ Multipoint, Installation and Operation Manual*
3920-A2-GH30	*COMSPHERE 392xPlus Modems, Models 3920Plus and 3921Plus, Technical Reference Manual*
6700-A2-GB20	*COMSPHERE 6700 Series Network Management System SNMP Proxy Agent Feature User's Guide*
6700-A2-GB21	*COMSPHERE 6700 Series Network Management System Multiuser Feature User's Guide*
6700-A2-GB22	*COMSPHERE 6700 Series Network Management System Network Configuration Guide*
6700-A2-GB23	*COMSPHERE 6700 Series Network Management System Remote Monitor Feature User's Guide*
6700-A2-GB41	*COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*

Contact your sales or service representative to order additional product documentation.

Paradyne documents are also available on the World Wide Web at:

http://www.paradyne.com

Select *Service &Support→Technical Manuals*

Reference Documents

Document Number	Document Title
90000001F	*Digi ClassicBoard 4, 8, and 16 Installation Guide*
92000527B	*Digi ClassicBoard Windows 95, Windows 3.x, OS/2 and FOSSIL Device Drivers Software Manual*

Introduction

1

COMSPHERE 6700 Series Overview

The COMSPHERE 6700 Series Network Management System (NMS) provides network management for COMSPHERE 2400, 3550, 3600, 3800, and 3900 Series devices operating in dial and leased-line applications throughout your network.

From a single personal computer (PC) workstation, the NMS supports up to 4,095 modems (devices) within a network. The NMS operates in the Microsoft Windows graphic environment. This innovative approach to network management allows you to configure your devices in real time, and monitor and respond to network alerts in real time.

NMS Features

The NMS integrates diagnostics, call statistics, network alerts, device management, and graphic displays to enhance network performance, availability, and utilization. The following list highlights NMS capabilities that help you manage your network:

- **Call Statistics:** Gathers call statistics data from devices in the network to help you monitor the utilization of the dial network resources.
- **Alert Monitoring:** Quickly identifies potential problems with devices or network connections through the use of color-coded icons and text.
- **Geographic Map:** Dynamically displays the network on global, domestic, and regional scales. Network events appear in an array of default or user-defined colors.
- **Reports:** Offers standard reports, such as alert history, device and network configuration, device configuration options, network hierarchy, and alert control that can be viewed or printed.

NMS is designed for users familiar with MS-DOS and Microsoft Windows.

Software and Hardware Description

NMS is an icon and menu-driven system that provides easy access to all network functions on the Main Menu bar. It is supplied on 3.5″ high-density disks for NMS installation. NMS follows basic Windows conventions.

NMS operates on any customer-provided 386/486 PC capable of using Windows in the 386 enhanced mode. Refer to *Hardware and Software Prerequisites* for additional information.

NMS works in conjunction with a COMSPHERE 3000 Series Carrier for 2400, 3550, 3600, 3800, and 3900 Series devices with a Shared Diagnostic Unit (SDU). Refer to the *COMSPHERE 3000 Series Carrier Installation Manual* for all necessary cables and network modules required for operation.

Hardware and Software Prerequisites

The following checklist provides the minimum hardware and software required to operate NMS.

NOTE:

NMS is designed to be the primary application program running on a personal computer. If you use NMS with other applications, it is your responsibility to ensure compatibility.

☐ 486 Series, 66 MHz or higher PC (or compatible computer)

☐ Hard disk with 15 MB of free space and a minimum of 14 ms access time

☐ 16 MB of RAM (32 MB of RAM is recommended)

☐ Super VGA (800 x 600 resolution) or higher with 256 colors

☐ Video accelerator card

☐ 1 serial port for device communication

☐ 1 parallel port for a printer

☐ 101 keyboard

☐ 3.5″ 1.44 megabyte diskette drive

☐ DB-25 socket to 6-pin (RJ11) socket adapter

This configuration is sufficient for a network of 256–512 local and remote devices. If the number of devices increases, use Table 1-1 as a guideline for upgrading your hardware configuration.

Table 1-1. Configuration for Networks with More Than 512 Local Devices

Number of Local Devices	Processor	Memory
513 to 1024	486 (66 MHz)	16 Megabytes
1025 to 1536	486 (90 MHz)	16 Megabytes
1537 to 2048	Pentium (133 MHz)	32 Megabytes

Table 1-2 presents additional minimum requirements for Dial devices running in using call statistics. An SVGA accelerator must also be installed.

Table 1-2. Minimum Additional Requirements for Devices Using Call Statistics

Call Activity (Calls/Day)	Call Statistics Database Size (Call Records)	Processor Required MHz	Memory Required	Hard Disk Speed (500 Mb Records)
15,000	200,000	486 – 100 MHz	16 Mb	14 Msec
30,000	325,000	Pentium – 133 MHz	16 Mb	12 Msec
45,000	450,000	Pentium – 166 MHz	16 Mb	9 Msec

See Chapter 13, *Hard Disk and System Recommendations,* for additional information.

Some COMSPHERE 6700 Series features have additional network configuration requirements. Refer to the appropriate feature documentation for details, or consult your sales representative for PC requirements appropriate for your network configuration.

Devices Supported

NMS fully supports COMSPHERE 2400, 3550, 3600, 3800, and 3900 Series devices. NMS can support up to 2048 central-site devices and additional remote devices for a total of 4095 devices.

Be sure that the devices to be monitored by NMS are correctly addressed and that the proper options are installed. Refer to the devices operator’s manual for additional information.

The 6700 Series NMS supports multiple control channels. If you will be using more than one port, you must purchase a DigiBoard Intelligent Serial Communications board in addition to COM1 and COM2. See *Using Intelligent Serial Boards* in Chapter 2, *Installation*, for more information.

Before You Get Started

This section outlines the steps necessary for a first time installation and explains the purpose of each major NMS section.

First-Time Installation

▶ Procedure

For a first-time installation, the following events need to occur:

1. Install the database and application software and at least one device-type feature. Software installation instructions are in Chapter 2, *Installation*.
2. Connect the PC to the devices. Hardware installation instructions are in Chapter 2, *Installation*. Appendix C, *Cabling Requirements*, has additional information on the adapters and cables needed.
3. Start NMS. Chapter 3, *Start-Up*, explains how to start NMS and how to log in to the system.
4. Configure NMS. Use the information provided in Chapter 4, *Configuration*, to set up NMS. To assist you in configuring the system, use the data input sheets in Appendix D, *Data Input Sheets*, to copy and fill out with the required information.
5. Use NMS to monitor, generate reports on, and possibly improve your network. The next section of this chapter outlines the basic functions of NMS.

Improving Performance

To optimize your network's performance, it is recommended that you:

- Reorganize your database at least once per week. See *Database Reorganization* in Chapter 13, *Hard Disk and System Recommendations*, for the reorganization procedure.
- Set storage requirements for Call Statistics, etc. to purge values that meet your needs. See *Hard Disk Space Requirements* in Chapter 13, *Hard Disk and System Recommendations*, for the reorganization procedure.
- Increase the number of control channels. See *Configuring the NMS Communications Environment* in Chapter 4, *Configuration.*

NMS Functions

The NMS software is divided into easy-to-use subsections.

- **Configuration:** Used to set up and maintain user-supplied network information. Defined within Configuration are the system requirements, network element names, contact personnel, phone numbers, locations, device options, facilities, and alert requirements. See Chapter 4, *Configuration*.
- **Displays:** Provides several different views of the network, to graphically show its health. Available displays are by map, cabinet, carrier, or alerts. Color-coded icons and legends provide quick information access. See Chapter 5, *Displays*.
- **Statistics:** Gathers data, such as call duration, from devices in the network to help you monitor the utilization of the dial network resources. See Chapter 6, *Statistics*.
- **Device Management:** Used to check a device's current status, test devices, inquire into a device's identification information and establish connections. See Chapter 7, *Device Management*.
- **Dial:** Establishes a dial connection. See Chapter 8, *Dial Function*.
- **Firmware Download:** Permits downloading of COMSPHERE 3900 Series device firmware updates directly from a PC. See Chapter 9, *Firmware Download*.
- **Reports:** Offers standard reports, such as alert history, device and network configuration, device configuration options, network hierarchy, and alert control that can be viewed or printed. See Chapter 10, *Reports*.
- **Session:** Permits changing of users without disturbing any open NMS windows, logging off NMS while keeping the main program in memory, or shutting down NMS. See Chapter 11, *Session*.
- **Platform/Network Performance Monitor:** Permits viewing of current platform/network resources and performance statistics. See Chapter 12, *Platform/Network Performance Monitor*.
- **Record and Device Locks:** Enables the COMSPHERE 6700 Series NMS Multiuser feature to protect its database and the data contained within its devices. See Appendix B, *Record and Device Tools*.

NMS conforms to the conventions and standards defined by Microsoft Windows. To learn more about specific conventions used by NMS and online help, refer to Appendix A, *NMS Windows Conventions*.

Installation

2

Installation Overview

This chapter provides procedures for COMSPHERE 6700 Series NMS installation. Before you install the software, verify that you have met the recommended hardware and software as outlined in *Hardware and Software Prerequisites* in Chapter 1, *Introduction*.

COMSPHERE 6700 Series NMS Software Package

Please check that your COMSPHERE 6700 Series NMS package contains the following:

- One set of 3.5″ 1.44 MB disks containing the NMS database software
- One set of 3.5″ 1.44 MB disks containing the NMS application software
- Paradyne Software License Agreement with License Serial Number
- One DB-25-S to 6-pin modular plug adapter
- *COMSPHERE 6700 Series Network Management System User's Guide*
- *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*

Retain the Software License Agreement. You will need to enter the License Serial Number during installation.

The user documentation is provided on diskette in .pdf format. It may be installed on a PC using Microsoft Windows 3.1 or above, then browsed or printed using the Adobe Acrobat Reader. The Reader is available at no charge at Adobe's World Wide Web site at http://www.adobe.com.

Installing NMS

The NMS software is supplied on 3.5″, 1.44 MB disks. Copy the original master disks and use the duplicates as working disks for normal operations. After duplication, store the master disk set in a secure area.

When performing the installation procedures, several windows present questions about the computer and the type of installation to be performed. Follow the directions on the screen and select the appropriate answers. During the remainder of the installation process, the system requests the subsequent disks of the software set. Insert the appropriate disk when prompted. If you are upgrading your software, refer to the software abstract for more information.

Required Installation Sequence

There are several procedures you need to perform to install the complete NMS. Install the NMS software in the following sequence:

1. Install the NMS Database software. See procedure on page 2-2.
2. Install the NMS Application software. See procedure on page 2-6.
3. Configure NMS for TCP/IP networks. See procedure on page 2-9.
4. Install any applicable NMS device features. See procedure on page 2-9.
5. Install the client/server software. Refer to *COMSPHERE 6700 Series Network Management System Multiuser Feature User's Guide.*
6. Install the SNMP Proxy software. Refer to *COMSPHERE 6700 Series Network Management System SNMP Proxy Agent Feature User's Guide.*

NOTE:

When installing multi-components, follow the installation instructions in the appropriate User's Guide.

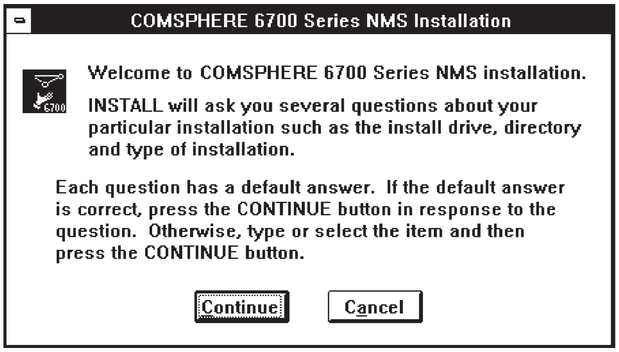
Installing the NMS Database Software

The following procedure refers to Drive A. Use the disk drive that is appropriate for your PC.

▶ Procedure

1. Insert Disk #1 into Drive A.
2. From the Program Manager window, if you are running:
   - — Windows 3.1, choose Run from the File menu.
   - — Windows 95 or Windows NT, choose the Start button and then Run.
3. In the Command Line field, type **`A:\INSTALL`**.

4. Choose OK. The Welcome window appears.



COMSPHERE 6700 Series NMS Installation

Welcome to COMSPHERE 6700 Series NMS installation.

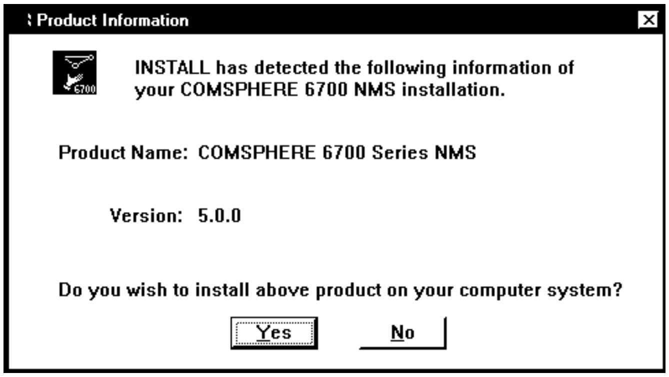
INSTALL will ask you several questions about your particular installation such as the install drive, directory and type of installation.

Each question has a default answer. If the default answer is correct, press the CONTINUE button in response to the question. Otherwise, type or select the item and then press the CONTINUE button.

NOTE:

Window borders in Windows 3.1, Windows 95, and Windows NT differ. Example window borders in this document will vary.

5. Choose Continue. The Product Information window appears.



Product Information

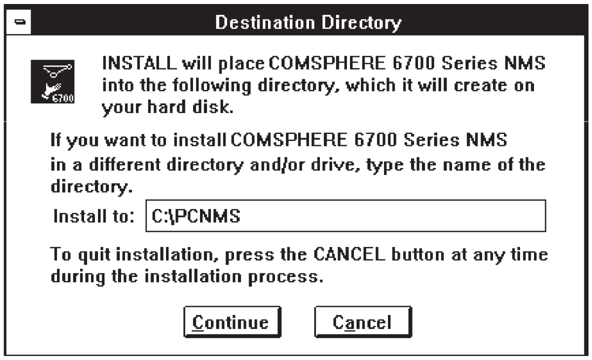
INSTALL has detected the following information of your COMSPHERE 6700 NMS installation.

Product Name: COMSPHERE 6700 Series NMS

Version: 5.0.0

Do you wish to install above product on your computer system?

6. Choose Yes. The Destination Directory window appears.



Destination Directory

INSTALL will place COMSPHERE 6700 Series NMS into the following directory, which it will create on your hard disk.

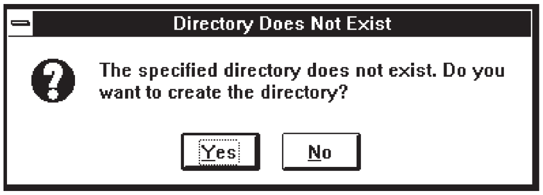
If you want to install COMSPHERE 6700 Series NMS in a different directory and/or drive, type the name of the directory.

Install to: C:\PCNMS

To quit installation, press the CANCEL button at any time during the installation process.

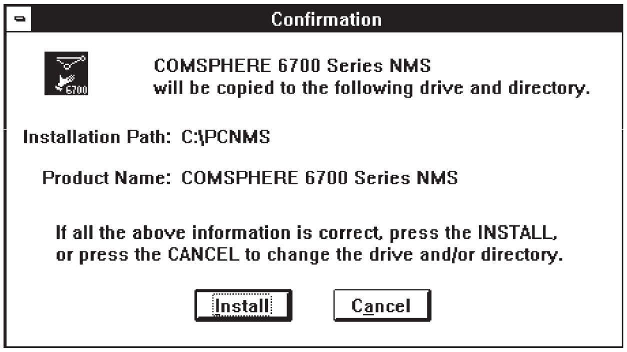
The Destination Directory window allows you to place the NMS software into a specific directory. A single directory within a single partition is required.

7. Enter a subdirectory location or choose the default setting **C:\PCNMS**.
8. Choose Continue. The Directory Does Not Exist window appears.



The specified directory does not exist. Do you want to create the directory?

9. Choose Yes to create the directory. The Confirmation window appears.



COMSPHERE 6700 Series NMS
will be copied to the following drive and directory.

Installation Path: C:\PCNMS

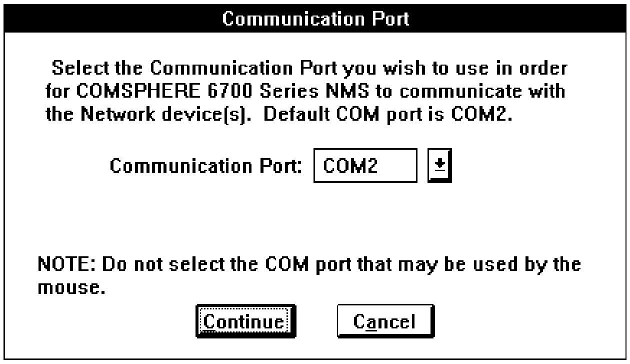
Product Name: COMSPHERE 6700 Series NMS

If all the above information is correct, press the INSTALL,
or press the CANCEL to change the drive and/or directory.

10. Choose Install to confirm the installation of the NMS software into the specified directory. The Communication Port window appears.

NOTE:

If you are upgrading your software rather than performing a new installation, skip this step and go on to Step 12.

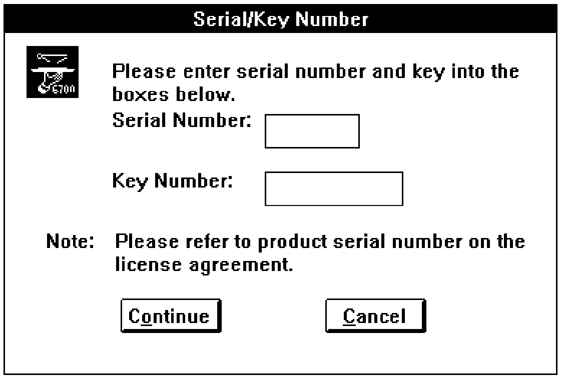


Select the Communication Port you wish to use in order for COMSPHERE 6700 Series NMS to communicate with the Network device(s). Default COM port is COM2.

Communication Port: COM2

NOTE: Do not select the COM port that may be used by the mouse.

11. Select the desired communication port, then choose Continue. The Serial Number and Key Number dialog box appears.



Serial/Key Number

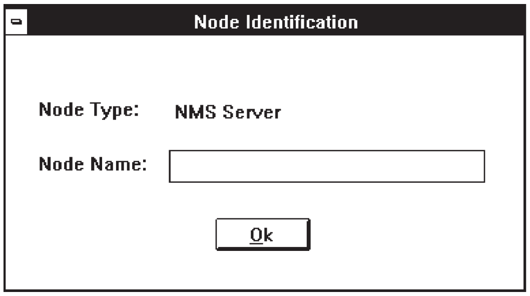
Please enter serial number and key into the boxes below.

Serial Number:

Key Number:

Note: Please refer to product serial number on the license agreement.

12. Enter the Serial Number and Key Number listed in your software license agreement.
13. Choose Continue. The Node Identification dialog box appears.

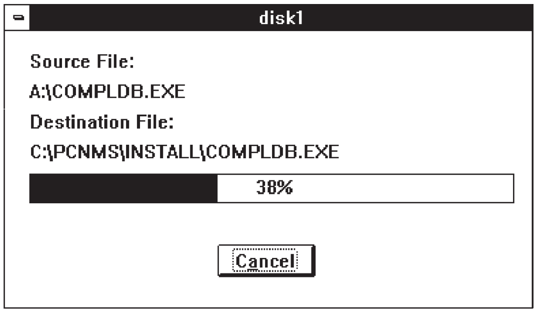


Node Identification

Node Type: NMS Server

Node Name:

14. In the **Node Name** field, enter a unique name for this node, up to 15 characters in length.
15. Choose OK. The Completion Status window appears.



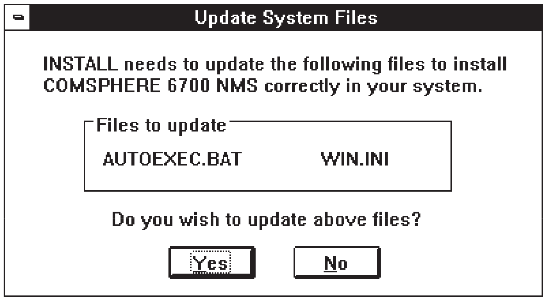
disk1

Source File:
A:\COMPLDB.EXE
Destination File:
C:\PCNMS\INSTALL\COMPLDB.EXE

38%

This window displays a bar indicating the percentage of completion for the current installation. In addition, the names of the files being installed appear above the bar until the installation is complete.

16. When prompted, insert the next disk and choose OK. When all disks are installed, the Update System Files dialog box appears.



Update System Files

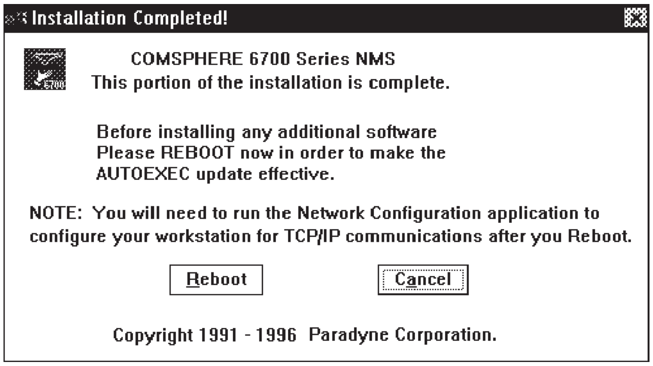
INSTALL needs to update the following files to install COMSPHERE 6700 NMS correctly in your system.

Files to update

AUTOEXEC.BAT WIN.INI

Do you wish to update above files?

17. Choose Yes. The COMSPHERE 6700 folder is created and the Installation Completed! window appears.



Installation Completed!

COMSPHERE 6700 Series NMS
This portion of the installation is complete.

Before installing any additional software
Please REBOOT now in order to make the
AUTOEXEC update effective.

NOTE: You will need to run the Network Configuration application to configure your workstation for TCP/IP communications after you Reboot.

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18. Choose Reboot.

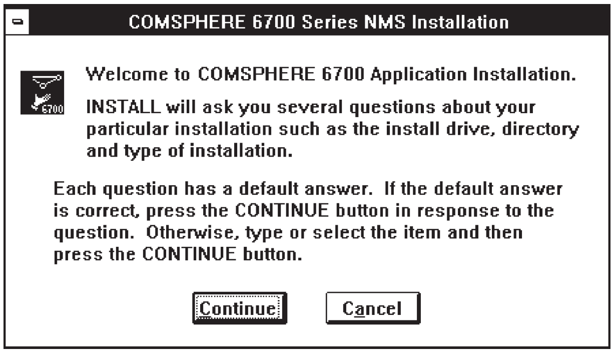
Installing the NMS Application Software

The following procedure refers to Drive A. Use the disk drive that is appropriate for your PC.

▶ Procedure

1. Insert Disk #1 into Drive A.
2. From the Program Manager window, if you are running:
   - — Windows 3.1, choose Run from the File menu.
   - — Windows 95 or Windows NT, choose the Start button and then Run.
3. In the **Command Line** field, type **`A:\INSTALL`**.

4. Choose OK. The Welcome window appears.

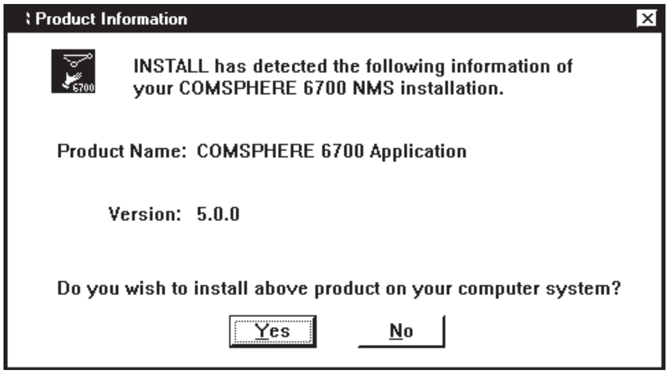


Welcome to COMSPHERE 6700 Application Installation.

INSTALL will ask you several questions about your particular installation such as the install drive, directory and type of installation.

Each question has a default answer. If the default answer is correct, press the CONTINUE button in response to the question. Otherwise, type or select the item and then press the CONTINUE button.

5. Choose Continue. The Product Information window appears.



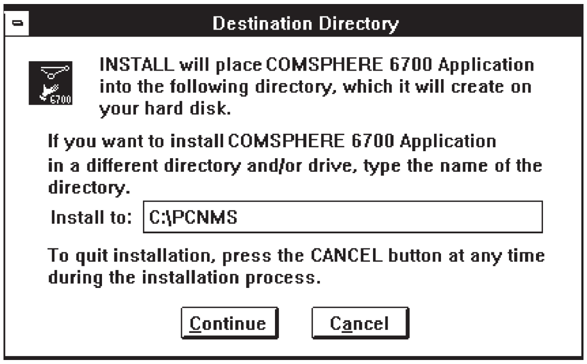
INSTALL has detected the following information of your COMSPHERE 6700 NMS installation.

Product Name: COMSPHERE 6700 Application

Version: 5.0.0

Do you wish to install above product on your computer system?

6. Choose Yes. The Destination Directory window appears.



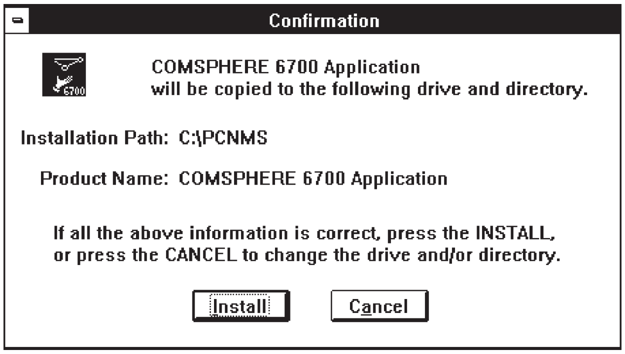
INSTALL will place COMSPHERE 6700 Application into the following directory, which it will create on your hard disk.

If you want to install COMSPHERE 6700 Application in a different directory and/or drive, type the name of the directory.

Install to: C:\PCNMS

To quit installation, press the CANCEL button at any time during the installation process.

7. Choose Continue. The Confirmation window appears.



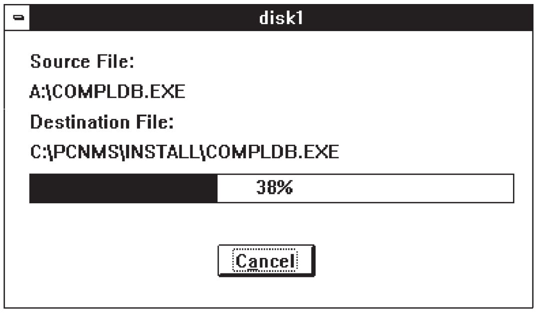
COMSPHERE 6700 Application
will be copied to the following drive and directory.

Installation Path: C:\PCNMS

Product Name: COMSPHERE 6700 Application

If all the above information is correct, press the INSTALL,
or press the CANCEL to change the drive and/or directory.

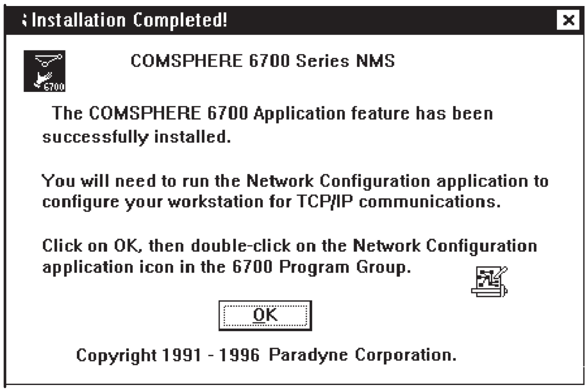
8. Choose Install to confirm the installation of the NMS software into the specified directory. The Completion Status window appears.



Source File:
A:\COMPLDB.EXE
Destination File:
C:\PCNMS\INSTALL\COMPLDB.EXE

This window displays a bar indicating the percentage of completion for the current installation. In addition, the names of the files being installed appear above the bar until the installation is complete.

9. When prompted, insert the next disk and choose OK. When all disks are installed, the Installation Completed! dialog box appears.



COMSPHERE 6700 Series NMS

The COMSPHERE 6700 Application feature has been successfully installed.

You will need to run the Network Configuration application to configure your workstation for TCP/IP communications.

Click on OK, then double-click on the Network Configuration application icon in the 6700 Program Group.

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10. Choose OK to return to Windows.

Configuring NMS for TCP/IP Networks

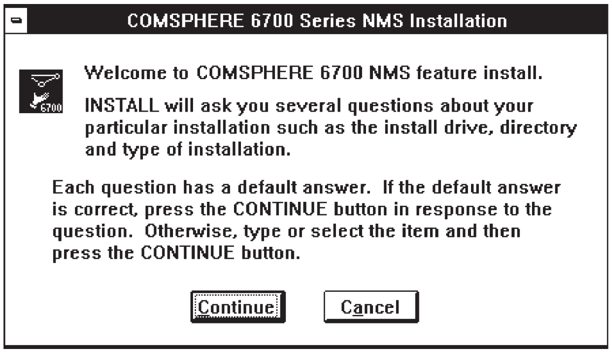
Use the Network Configuration application to customize your configuration for TCP/IP networks. For details on doing so, refer to the *COMSPHERE 6700 Series Network Management System Network Configuration Guide*. Refer to Appendix D, *Data Input Sheets*, for blank forms.

Installing an NMS Feature

The following procedure refers to Drive A. Use the disk drive that is appropriate for your PC.

▶ Procedure

1. Insert Disk #1 into Drive A.
2. From the Program Manager window, if you are running:
   - — Windows 3.1, choose Run from the File menu.
   - — Windows 95 or Windows NT, choose the Start button and then Run.
3. In the **Command Line** field, type **`A:\INSTALL`**.
4. Choose OK. The Welcome window appears.



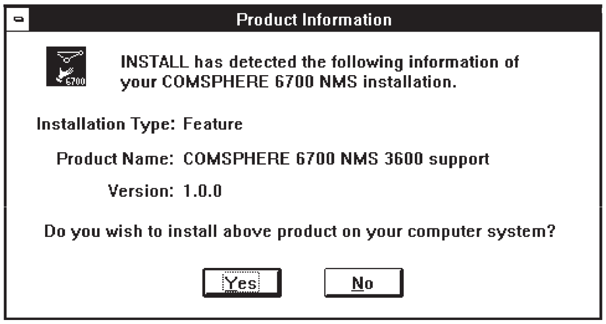
COMSPHERE 6700 Series NMS Installation

Welcome to COMSPHERE 6700 NMS feature install.

INSTALL will ask you several questions about your particular installation such as the install drive, directory and type of installation.

Each question has a default answer. If the default answer is correct, press the CONTINUE button in response to the question. Otherwise, type or select the item and then press the CONTINUE button.

5. Choose Continue. The Product Information window appears.



Product Information

INSTALL has detected the following information of your COMSPHERE 6700 NMS installation.

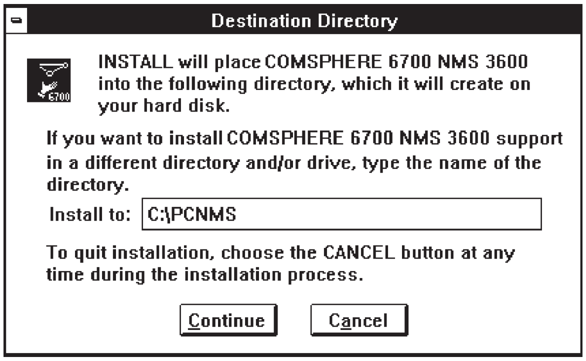
Installation Type: Feature

Product Name: COMSPHERE 6700 NMS 3600 support

Version: 1.0.0

Do you wish to install above product on your computer system?

6. Choose Yes. The Destination Directory window appears.



INSTALL will place COMSPHERE 6700 NMS 3600 into the following directory, which it will create on your hard disk.

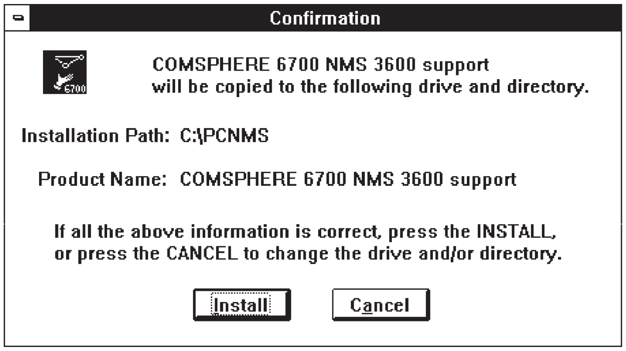
If you want to install COMSPHERE 6700 NMS 3600 support in a different directory and/or drive, type the name of the directory.

Install to: C:\PCNMS

To quit installation, choose the CANCEL button at any time during the installation process.

The Destination Directory window allows you to place the NMS software into a specific directory. A single directory within a single partition is required.

7. Enter a subdirectory location or choose the default setting **C:\PCNMS**.
8. Choose Continue. The Confirmation window appears.



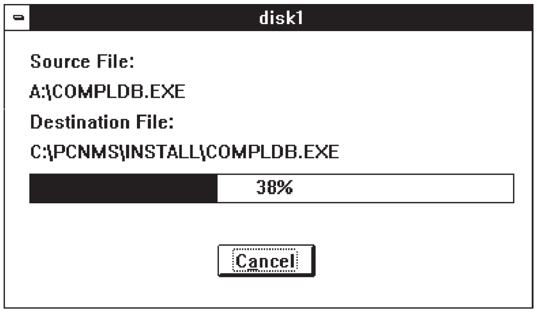
COMSPHERE 6700 NMS 3600 support will be copied to the following drive and directory.

Installation Path: C:\PCNMS

Product Name: COMSPHERE 6700 NMS 3600 support

If all the above information is correct, press the INSTALL, or press the CANCEL to change the drive and/or directory.

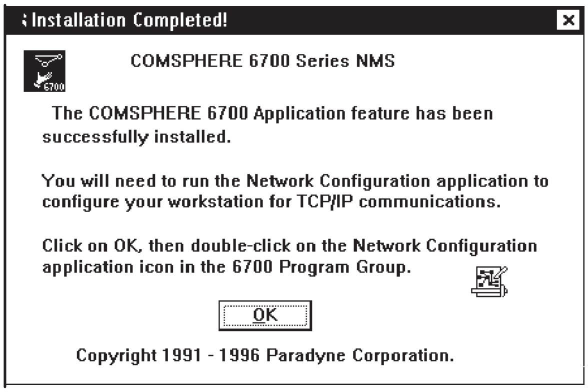
9. Choose Install to confirm the installation of the NMS software into the specified directory. The Completion Status window appears.



Source File:
A:\COMPLDB.EXE
Destination File:
C:\PCNMS\INSTALL\COMPLDB.EXE

This window displays a bar indicating the percentage of completion for the current installation. In addition, the names of the files being installed appear above the bar until the installation is complete.

When the feature is installed, the Installation Completed! dialog box appears.



COMSPHERE 6700 Series NMS

The COMSPHERE 6700 Application feature has been successfully installed.

You will need to run the Network Configuration application to configure your workstation for TCP/IP communications.

Click on OK, then double-click on the Network Configuration application icon in the 6700 Program Group.

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10. Choose OK to return to Windows.

    Repeat this procedure for any additional NMS features you want to install.

11. To start NMS, choose the NMS icon from the COMSPHERE 6700 Program Group window.

Installing Cables and Connectors

The NMS package includes a DB-25-S socket to 6-pin modular jack adapter. This adapter provides a connection from the computer’s serial port to the SDU.

Prior to cabling the system, make sure you have a standard 6-pin to 6-pin modular cord long enough to span the distance between the computer and the SDU. The maximum distance is 50 feet (15 meters).

▶ Procedure

1. Attach the DB-25-S connector of the adapter to the DB-25-P connector of the serial port on the rear of the computer. If the serial port is not a DB-25-P connector, refer to Appendix C, *Cabling Requirements,* for specific information for selecting or constructing an adapter.
2. Plug one end of the modular cord into the 6-pin modular jack in the adapter.
3. Plug the other end of the modular cord into the CC IN jack of the SDU installed in your COMSPHERE 3000 Series Carrier.

NMS is now connected to the devices installed in the carrier. For information on how to daisy chain carriers together, refer to the *COMSPHERE 3000 Series Carrier Installation Manual*.

Using Intelligent Serial Boards

NMS supports the DigiBoard 4-Port and 8-Port Intelligent Asynchronous Serial Communications boards.

These boards add serial ports in addition to COM1 and COM2, and use an onboard 80186 processor to handle most of the overhead of serial communications, leaving the system processor more time to run applications. See your sales representative or computer supplier for information on how to order an intelligent serial board.

An 8-port D-subminiature connector box with socket DB-25 connectors is available with the DigiBoard.

Make sure you order the correct version of MS-Windows drivers with the intelligent serial board.

For installation instructions, refer to the appropriate intelligent serial board documentation.

Printing Reports

NMS provides various reports you can print with any printer supported by Windows. The reports available from Statistics are graphical representations requiring a Windows-supported graphics printer. For more on printer setup, refer to *Setting Up the System Printer* in Chapter 4, *Configuration*.

Obtaining Additional Information

Any additional NMS information not available when this manual was published resides in .WRI files in the subdirectory where the NMS software resides (normally C:\PCNMS). You can access and read any available .WRI files using the procedure in this section.

You can also use the following procedure to read the Database Schema for use with a database program.

▶ Procedure

1. Perform the complete NMS installation or NMS update installation procedure as explained in *Installing the NMS Database Software* on page 2-2.
2. Start the Microsoft Windows program.
3. Start the Write accessory program that comes with Windows and use the open file command to check the subdirectory where the PCNMS software resides (normally C:\PCNMS) for any .WRI files.
4. Open any .WRI files and read them. Use the Write print file function to the .WRI file, if required.

   Refer to the Windows user’s guide for additional information on Windows and Write.

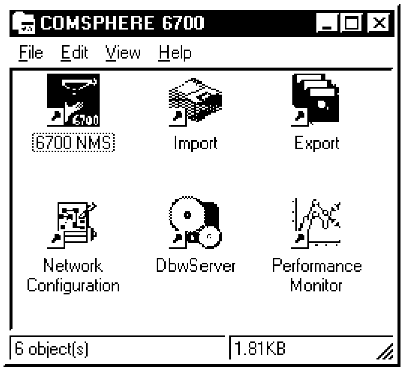
Start-Up

3

Logging Into NMS

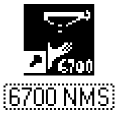
This chapter describes how to start and log into the COMSPHERE 6700 Series NMS.

During installation of the NMS software, a group icon and program item icon are created. The group icon is labeled **COMSPHERE 6700** and appears in the Program Manager window or Program Directory. The program item icon is labeled 6700 NMS and displays in the COMSPHERE 6700 group window.

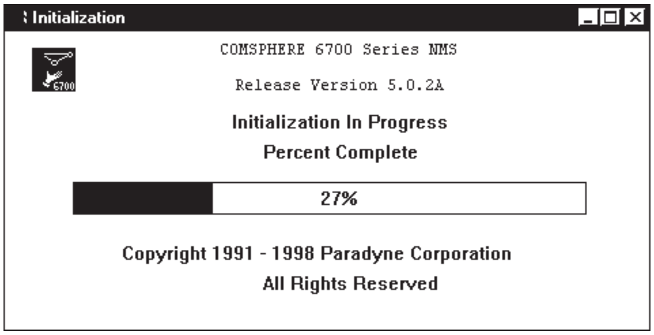


▶ Procedure

1. Choose the COMSPHERE 6700 group icon in the Program Manager window. The COMSPHERE 6700 group window opens and shows the 6700 NMS program item icon.



2. Choose the 6700 NMS program item icon. The NMS Initialization window appears.



COMSPHERE 6700 Series NMS

Release Version 5.0.2A

Initialization In Progress

Percent Complete

27%

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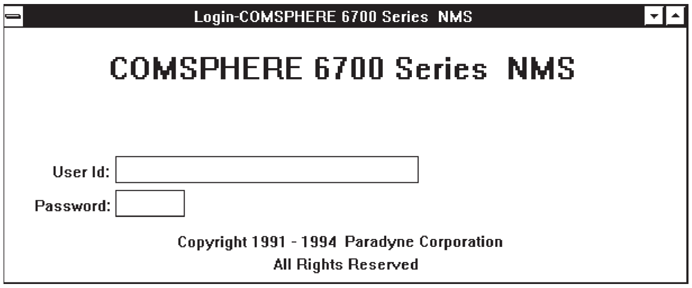
As the software is initializing, the percentage complete bar shows the system's progress. Once this is complete, the NMS Login window appears.



COMSPHERE 6700 Series NMS

User Id:

Password:

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▶ Procedure

1. Type **`Paradyne`**, the supplied default user identification.
2. Press Tab.
3. Type **`PDN`**, the supplied default password. (The earlier versions of this software used ATT for the default password).
4. Press Enter. When login is complete, the NMS Login window closes and the COMSPHERE 6700 Series NMS Main Menu appears.

NOTES:

Both the **User ID** and **Password** fields are case-sensitive. For network security, it is recommended that you:

— Create your own user identification and password, and

— Delete or change the supplied User ID and password.

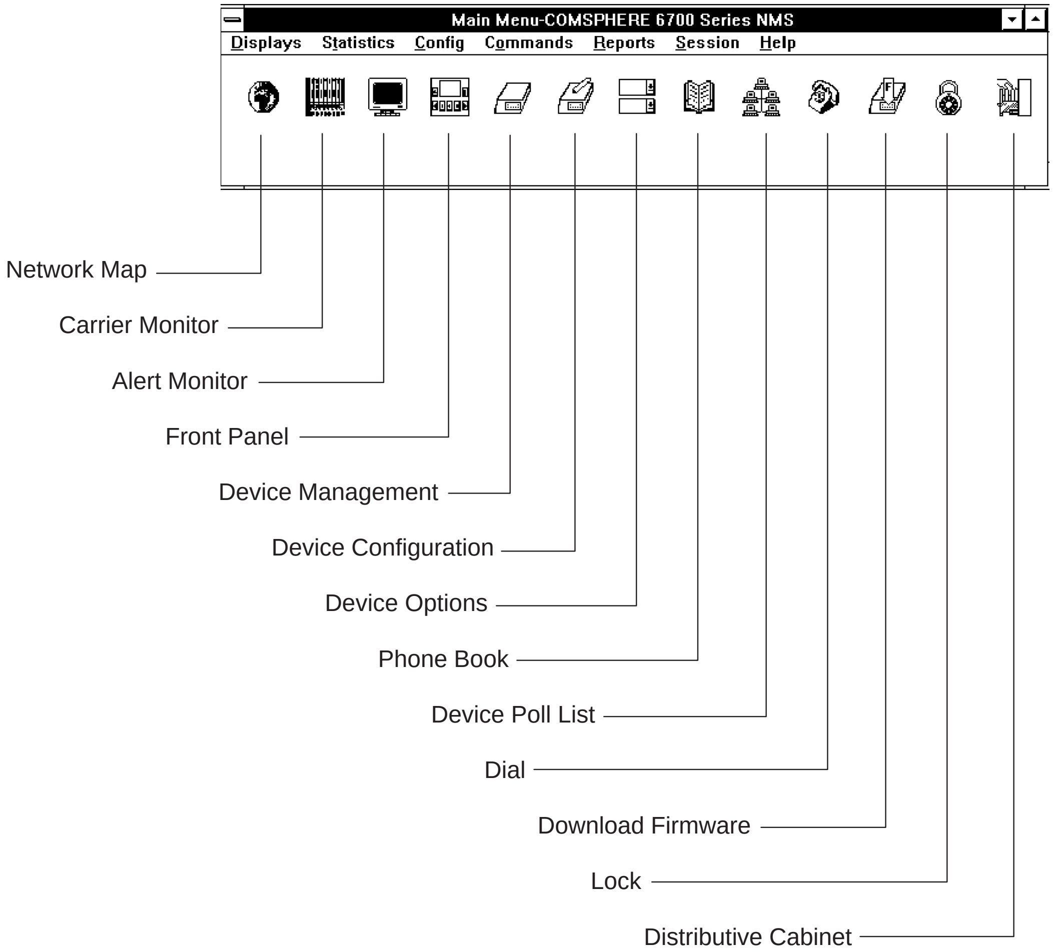
Refer to *Defining NMS Users,* Chapter 4, *Configuration*, for information on creating User IDs and passwords.

Terminating a Login

To terminate the login at anytime during the login process, choose the Close command from the NMS Login window's control menu box in the upper left-hand corner of the NMS Login window. The NMS Login window closes and NMS terminates.

Main Menu

After a successful login, the COMSPHERE 6700 Series NMS Main Menu window appears. This window provides access to all network management functions.



These icons enable you to execute a particular function without selecting the item from a menu. Click the left mouse button to select the desired icon.

The following is a brief description of the sub-menu functions:

- **Displays** allows you to monitor the health of the network, and provides direct access to a device’s front panel.
- **Statistics** allows you to access windows and functions that provide various statistical views of network connectivity.
- **Config** allows you to view and modify the configuration of both the device network and network management system.
- **Commands** allows you to directly control and test devices in the network, establish a dial connection, and perform a firmware download for 3900 Series devices.
- **Reports** allows you to generate reports provided by the system.
- **Session** allows you to logoff, change the current user, or completely shut down the network management system.
- **Help** provides access to the NMS Online Help for information about the Main Menu menu bar’s commands.

Where to Go from Here

If this is an initial installation of the NMS software, use the **Network** command from the Config menu to build your network. Refer to Chapter 4, *Configuration*, for more on the use of these commands.

After the network is created, use the Main Menu selections to control and test devices, display statistics and network activity, and generate both graphic and text reports describing network operations.

Configuration

4

Configuration Overview

This chapter describes how to set up your network for the first time and how to maintain it. Network configuration involves building your network database in three different areas: **Network**, **Alerts and Events**, and **System**.

Before you begin network configuration, you need to gather specific information: network element names, contact personnel, phone numbers of site locations, physical and geographic locations, device options, serial numbers, facility names, and network addresses.

To prepare for network configuration, refer to Appendix D, *Data Input Sheets*. Photocopy these data input sheets and use them as worksheets to write in the requested network information. Have the worksheets at your side when you begin network configuration.

Enter data on a displayed data input sheet to provide the following information:

- A description of contact names and network elements, such as sites, cabinets, carriers, devices, facilities, and device groups (via **Network**).
- The alerts to be monitored and the associated criteria (via **Alerts and Events**).
- A description of NMS users, the NMS environment, and system options (via **System**).

As you enter your configuration information via **Network**, NMS links the information between the elements in the network. It is important that you enter configuration information in a specific order so that NMS can find dependent data that it seeks.

For example, you must configure a cabinet before you configure the carriers in the cabinet. If you do not enter information in the recommended order, an NMS dialog box interrupts your configuration procedure to ask you to enter the missing information. If you provide information that does not currently exist, NMS creates it. As an example, configuring a carrier before configuring a cabinet results in the following:

- NMS requires that a Cabinet name be entered.
- If this is a new Cabinet name, NMS prompts you to confirm adding that name to the network configuration information. If you respond that the Cabinet name is to be added, NMS adds the new Cabinet name to the configuration using any common field information (such as comments) from the Carrier.

The recommended order of entering configuration information is as follows:

1. Contact Lists
2. Sites
3. Cabinets
4. Carriers
5. Devices
6. Facilities
7. Device Groups

You may enter configuration information via **Alerts and Events** and **System** in any order.

All contact list, site, cabinet, carrier, device, facility and device group names must be unique. If a name is already recorded in the database, the information is automatically filled in the input form.

Configuration Menu

Use the Configuration (**Config**) commands to establish your network. Describe the network elements to monitor, set the operational criteria for NMS, define the alert priorities and filters, and identify the system's users and contact personnel.

NOTE:

Many configuration functions require that you select a device before you can activate the function. If the command you want is gray (inactive), check to see if NMS requires that you first select a device before you choose the command.

When you are ready to set up your network, select Config from the Main Menu. The Config pull-down menu commands are described below:

- **Network** describes personnel contacts and network elements.
- **Alerts and Events** defines alert reporting parameters.
- **System** sets system attributes and options, and identifies the system's users.
- **Call Security** sets VF passwords and security control. These options are detailed in the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

Common Configuration Commands

Network configuration has some functions common to all types of configuration:

- Action commands (see *Using the Action Commands* on page 4-3)
- Info command (see *Information Display* in Appendix A, *NMS Windows Conventions*)
- Selection Browser (see *Device Selection* in Appendix A, *NMS Windows Conventions*)
- Selection List Button (see *Glossary)*

Using the Action Commands

Use the **Action** commands (Table 4-1), accessed from the configuration menus, with the configuration input forms to create, change, delete, and print configuration information.

Table 4-1. Common Action Commands from Configuration Menus (1 of 2)

Action Commands	Functions	Procedures
Save	Stores contents of input form to the network database. Use this command for updating or adding elements to the database.	1. Complete the input form. 2. Choose Save.
Delete	Removes the element from the network database.	1. Access an existing element name on the input form. 2. Choose Delete.
Clear	Removes the current field entries of the input form without affecting the network database.	1. Choose Clear.

Table 4-1. Common Action Commands from Configuration Menus (2 of 2)

Action Commands	Functions	Procedures
Change Name	Changes the network element's name throughout the network database.	1. Access an existing element name on the input form. 2. Choose Change Name. 3. Enter the new name in the dialog box. 4. Choose OK.
Print	Prints configuration information currently stored in the database for all but Contact List, Device Options and Device Groups. For Device Options configuration, the Print command prints the current device options displayed in the Edit Area of the input form or the device options displayed in the Compare Device Options List window. For Contact List and Device Groups, the Print command prints what is currently displayed.	1. Access an existing element name on the input form. 2. Choose Print. *or* 1. Complete the input form. 2. Choose Save. 3. Choose Print.
Print All	For Contact List, Facility, and Device Groups, prints the information currently stored in the database.	1. Access an existing Contact List or Device Group name on the input form. 2. Choose Print All. *or* 1. Complete the input form. 2. Choose Save. 3. Choose Print All.

NOTE:

When the COMSPHERE 6700 Series NMS Multiuser Feature is installed, NMS utilizes a locking mechanism to protect devices and the NMS database. This locking mechanism prevents a user from saving, deleting, or changing a record or device information currently accessed by another user. When this happens, the Save, Delete, and Change Name commands on the Action menu are gray and inaccessible.

Use the **Info** command from a configuration menu to display information about a network element (see *Information Display* in Appendix A, *NMS Windows Conventions*). You must select a device before you can access the **Info** command.

Configuring Network Elements

To configure network elements for the NMS database, select Config from the Main Menu and then choose Network. Complete the configuration data input forms to add data to the network database.

Use the **Action** commands (Table 4-1) to save, change, delete, clear, or print configuration information or to change the name of the network element.

Configuring a Contact List

A contact list is a user-defined directory of all primary and secondary contact names, addresses and telephone numbers in the network.

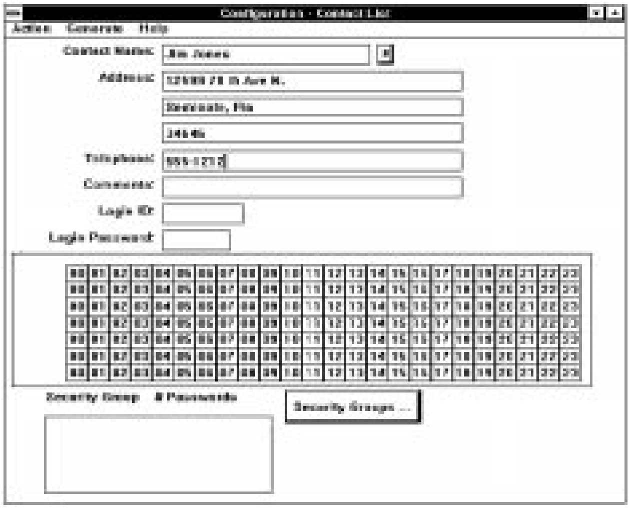
Contact List commands allow you to create, change, delete, or print contact configuration information. To create or change contact information, complete the Contact List Configuration input form by completing the appropriate fields. Use the commands from the Action menu (Table 4-1) to complete configuration.

NOTE:

To change an existing contact name in the contact list without changing the supporting information, use the **Change Name** command from the Action menu. Changing the contact name without using the **Change Name** command creates a new contact list record if the entry is a new name, or it changes the supporting information of an existing contact name.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Network from the Config menu.
3. Choose Contact Lists from the Network cascading menu. The Contact List Configuration input form appears.



Contact Name: Jim Jones

34646

Telephone: 555-1212

00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

NOTE:

To change an existing contact name in the contact list without changing the supporting information, use the **Change Name** command from the Action menu. Changing the contact name without using the **Change Name** command (such as editing the field and then using the **Save** command) creates a new contact list record if the entry is a new name, or it changes the supporting information of an existing contact name.

4. Enter the following information in the fields on the Contact List Configuration input form by either:

   — Using the selection list button to the right of the field to access existing field entries, or

   — Typing the information in the field, then pressing Tab.

   Contact Name: The name of the person (maximum 25 characters) associated with a specific site or device to contact if there is a problem or question.

   Address: Four optional fields (maximum 40 characters each) that contain the contact's address.

   Telephone: An optional field (maximum 40 characters) that contains the contact's complete telephone number.

   Comments: An optional field for additional contact information (maximum 40 characters).

   NOTE:

   The other fields appearing on this form consist of enhancements provided by the Security Manager feature. This feature is documented in the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

5. Choose Save or one of the other commands from the Action menu (see Table 4-1).

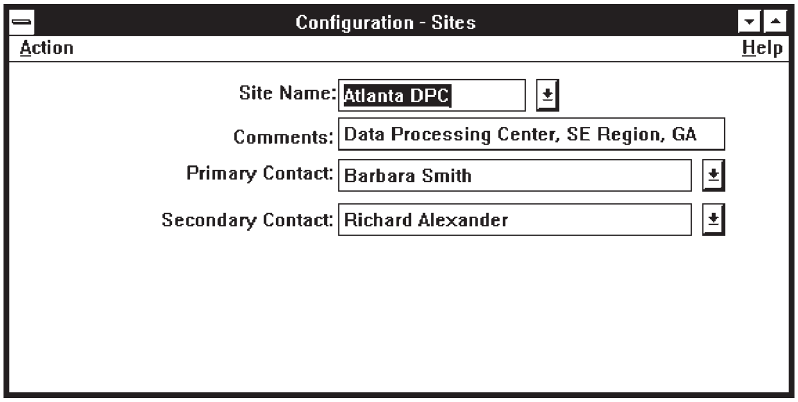
Configuring a Network Site

Site Configuration commands allow you to create, change, delete, or print site configuration information used to specify a device's location.

Use the **Action** commands (Table 4-1) to complete configuration. You can also place the site on the Network Map using the Action menu. (See Chapter 5, *Displays*, for information on how to place a site using the Network Map display.)

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Network from the Config menu.
3. Choose Sites from the Network cascading menu. The Site Configuration input form appears.



Site Name: Atlanta DPC
Comments: Data Processing Center, SE Region, GA
Primary Contact: Barbara Smith
Secondary Contact: Richard Alexander

4. Enter the following information in the fields on the Site Configuration input form by either:
   - — Using the selection list button to the right of the field to access existing field entries, or
   - — Typing the information in the field, then pressing Tab.

   Site Name: A required field that designates the geographic location of the network device(s) (maximum 15 characters). The site name must be unique to all other network element names in the network.

   Example: Lakeland DPC

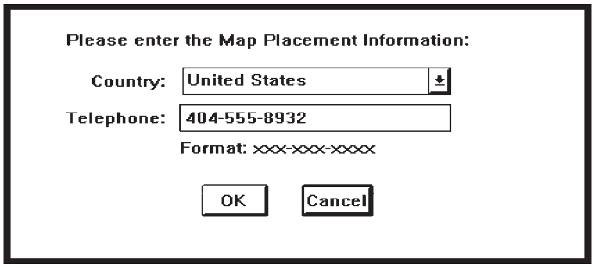
   Comments: Additional site information (maximum 40 characters).

   Primary Contact: The name of the person to contact at this site (maximum 25 characters). If a new Primary Contact name is entered, NMS prompts inquiring if the new name may be added to the NMS database.

   Secondary Contact: The name of the person to contact if you cannot reach the primary contact (maximum 25 characters). If a new Secondary Contact name is entered, NMS prompts inquiring if the new name may be added to the NMS database.

5. Either choose Save from the Action menu (see Table 4-1) or go to Step 6 to save and place the site on the Network Map.
6. Choose Save and Place from the Action menu to place the site on the Network Map.

A dialog box appears asking for the following map placement information.



Please enter the Map Placement Information:

Country: United States

Telephone: 404-555-8932

Format: xxx-xxx-xxxx

Country: Use the selection list button to select the site's country.

Telephone: Enter the telephone number, including the area code, if the site is in the United States or Canada (maximum 20 characters). Enter the city code if the site is not in the United States or Canada.

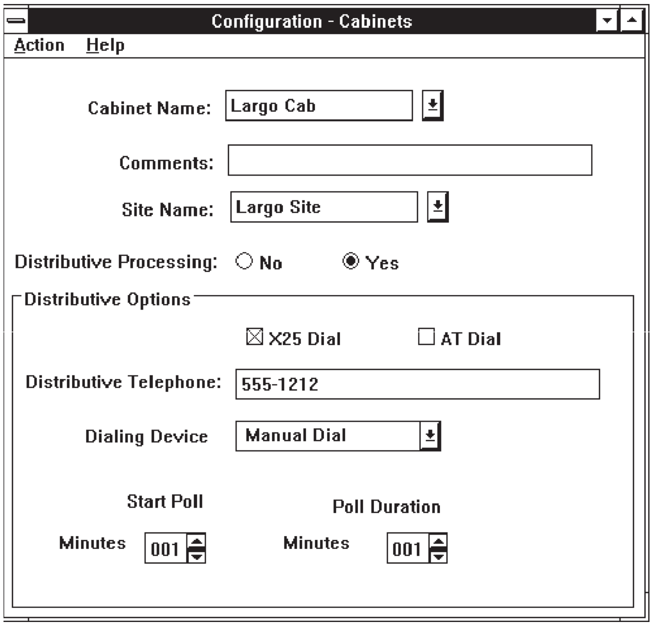
7. Choose OK to place the site on the Network Map.

Configuring a Cabinet at a Network Site

Cabinet Configuration commands allow you to create, change, delete, or print cabinet configuration information used to specify a device's location.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Network from the Config menu.
3. Choose Cabinets from the Network cascading menu. The Cabinet Configuration input form appears.



Cabinet Name: Largo Cab

Comments:

Site Name: Largo Site

Distributive Processing: ○ No ● Yes

Distributive Options

☒ X25 Dial ☐ AT Dial

Distributive Telephone: 555-1212

Dialing Device Manual Dial

Start Poll Minutes 001

Poll Duration Minutes 001

4. Enter the following information in the fields on the Cabinet Configuration input form by either:
   - — Using the selection list button to the right of the field to access existing field entries, or
   - — Typing the information in the field, then pressing Tab.

   Cabinet Name: A required field that must be unique to all other network element names in the network (maximum 15 characters). A cabinet houses up to six carriers which can contain up to 16 devices each.

   Example: TPA-SLS-Cab1

   Comments: Additional cabinet information (maximum 40 characters).

   Site Name: A required field that designates the geographic location of the network device(s) (maximum 15 characters). The site name must be unique to all other network element names in the network.

   Example: Lakeland DPC

   If a new site name is entered, NMS prompts you by inquiring if the new name may be added to the NMS database. The comment information entered for the cabinet is used for the new site.

5. Select an option button in the Distributive Processing field to choose one of the following:

   Yes: The devices defined within the cabinet will be polled at a particular time interval. The connection can be permanent or dialed. The Distributive Options group box is enabled.

   No: The devices will be polled all the time.

6. If you chose Yes for Distributive Processing, the following information appears in the **Distributive Options** box:

   X25 Dial: The connection is established through X.25 connection procedures.

   AT Dial: The connection is established through AT dialing procedures.

   > **NOTE:**
   >
   > If neither box is checked, a permanent connection is established.

   Distributive Telephone: An optional field containing the telephone number used to dial the cabinet when making a distributive connection (maximum 35 characters).

   Dialing Device: The device used to dial the distributive devices. Choose Manual Dial (default selection) for the communication protocol handler to issue AT dial commands to the remote device. After the connection has been made, normal ADp protocol is used. A manual dial connection must have a dial modem attached to the COM port and the remote dial modem attached to the CC-IN port.

Choose a local device name to have the local device dial the distributive devices. The telephone number assigned to the cabinet is used to dial the distributive devices. The remote dial modem must be attached to the CC-IN port.

When using a device to dial, all devices in the distributive cabinet must be on the same control channel as the dialing device. For example, if the dialing device's address is 1/16, then all the devices in the distributive cabinet must be on control channel 1.

Start Poll: The amount of time in minutes that the NMS will wait prior to performing an automatic distributive connection. Choose a value from 0 (connection will never be opened) to 720 minutes.

Poll Duration: The amount of time in minutes that the NMS will keep the distributive connection open. When this duration has expired, all polls to distributive devices will automatically be cleared. Choose a value from 0 (connection will never be closed) to 720 minutes.

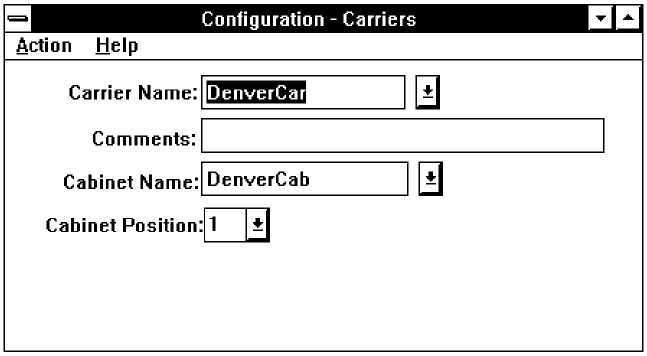
7. Choose Save or one of the other commands from the Action menu (see Table 4-1).

Configuring a Carrier in a Cabinet

Carrier Configuration commands allow you to create, change, delete, or print carrier configuration information used to specify a device's location.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Network from the Config menu.
3. Choose Carriers from the Network cascading menu. The Carrier Configuration input form appears.



Carrier Name: DenverCar

Comments:

Cabinet Name: DenverCab

Cabinet Position: 1

4. Enter the following information in the fields on the Carrier Configuration input form by either:

   — Using the selection list button to the right of the field to access existing field entries, or

   — Typing the information in the field, then pressing Tab.

   Carrier Name: A required field that must be unique to all other network element names in the network (maximum 15 characters). A carrier can hold up to 16 devices.

   Example: TPA-001

   Comments: An optional field for additional carrier information (maximum 40 characters).

   Cabinet Name: A required field that must be unique to all other network element names in the network (maximum 15 characters). A cabinet houses up to six carriers.

   Example: TPA-SLS-Cab1

   If a new cabinet name is entered, NMS prompts you by inquiring if the new name may be added to the NMS database. The comment information is used for the new cabinet.

   Cabinet Position: A number from 1–6. The number 1 designates that the carrier is in the top position in the cabinet; 6 means the carrier is in the lowest position in the cabinet.

5. Choose Save or one of the other commands from the Action menu (see Table 4-1).

Configuring a Device

Configuring a device involves entering information in three separate areas:

- **Profiles** to complete the device configuration input form.
- **Device Options** to configure device options.
- **Phone Directory** to assign telephone numbers residing within a device.

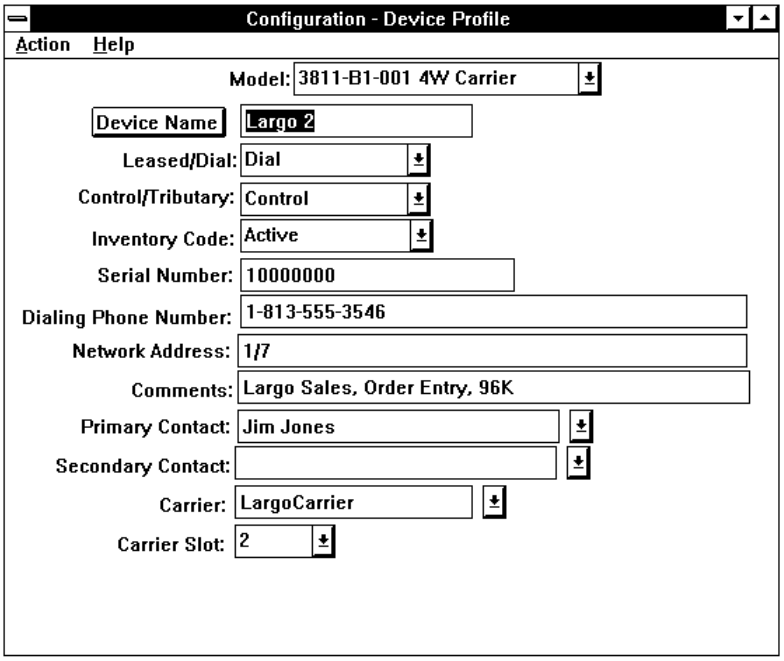
Completing the Device Configuration Input Form

Device Configuration commands allow you to create, change, delete, or print device configuration information used to specify a device's location. To create or change a device configuration, complete the Device Configuration input form by entering information in the appropriate fields.

Use the **Action** commands (Table 4-1) to complete configuration. You can also place the device on the Network Map using the Action menu. (See Chapter 5, *Displays*, for information on how to place a device using the Network Map display.)

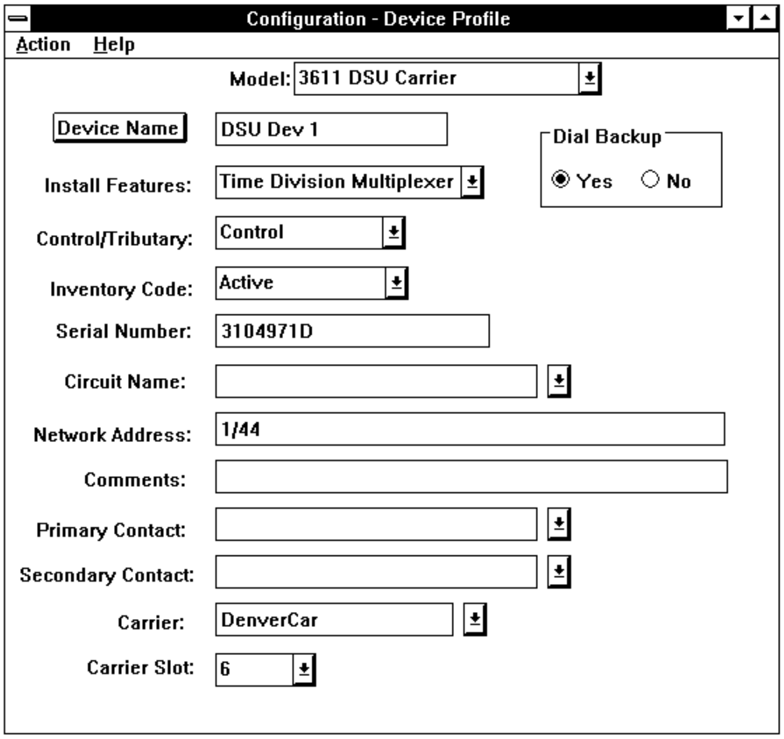
▶ Procedure

1. Select Config from the Main Menu, or select the Device Configuration icon in the toolbar and go on to Step 4.
2. Choose Network from the Config menu.
3. Choose Devices from the Network cascading menu.
4. Choose Profiles from the Devices cascading menu. The Device Configuration input form appears. The number of fields that display on the input form depends on the device model you select.



Model: 3811-B1-001 4W Carrier
Device Name: Largo 2
Leased/Dial: Dial
Control/Tributary: Control
Inventory Code: Active
Serial Number: 10000000
Dialing Phone Number: 1-813-555-3546
Network Address: 1/7
Comments: Largo Sales, Order Entry, 96K
Primary Contact: Jim Jones
Secondary Contact:
Carrier: LargoCarrier
Carrier Slot: 2

Example of a Device Configuration Input Form for Model 3811-B1-001



Model: 3611 DSU Carrier

Device Name: DSU Dev 1

Dial Backup: ● Yes ○ No

Install Features: Time Division Multiplexer

Control/Tributary: Control

Inventory Code: Active

Serial Number: 3104971D

Circuit Name:

Network Address: 1/44

Comments:

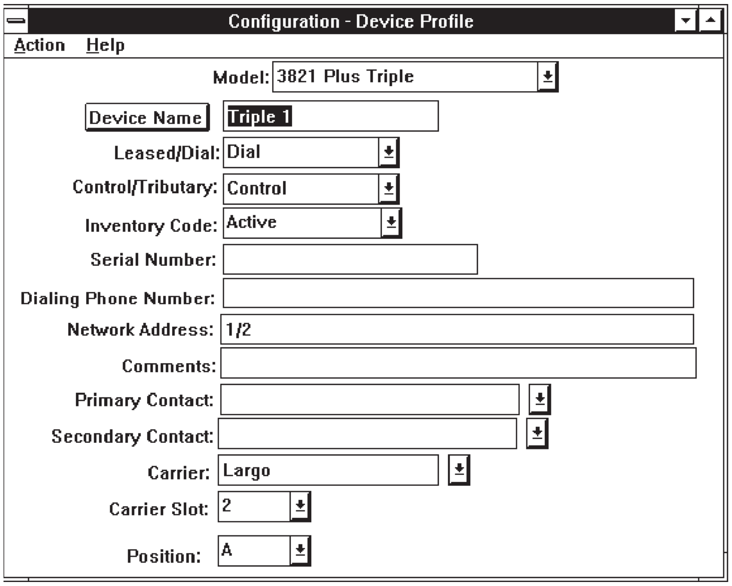
Primary Contact:

Secondary Contact:

Carrier: DenverCar

Carrier Slot: 6

Example of a Device Configuration Input Form for Model 3611 DSU Carrier



Model: 3821 Plus Triple

Device Name: Triple 1

Leased/Dial: Dial

Control/Tributary: Control

Inventory Code: Active

Serial Number:

Dialing Phone Number:

Network Address: 1/2

Comments:

Primary Contact:

Secondary Contact:

Carrier: Largo

Carrier Slot: 2

Position: A

Example of a Device Configuration Input Form for Model 3821*Plus* Modem

5. Enter the following information in the fields on the Device Configuration input form by either:

   — Using the selection list button to the right of the field to access existing field entries, or

   — Typing the information in the field and pressing Tab.

   Model: Required when a new device is entered. Select a model from the displayed list.

   Device Name: A label (maximum 15 characters) that is unique to the network. Selecting the Device Name button gives you access to the Selection Browser. Refer to *Device Selection* in Appendix A, *NMS Windows Conventions,* for additional information on using the Selection Browser.

   Example: ATL1-OE-096

   Dial Backup: Yes indicates that the DSU is configured with a DBM. **No** indicates that a DBM is not configured. The DBM-V/DBM-S is a separate device configuration available only for 3611 Series devices, so **No** should be chosen for this device.

   Installed Features: Indicates what additional features are installed with this device. Select from None, Time Division Multiplexer, Multichannel Multipoint, and Modem Sharing Device.

   NOTE:

   If the selected device is a DSU or APL with a TDM or multipoint feature installed, an additional carrier slot will be reserved.

   Leased/Dial: Select either Leased or Dial to indicate the device's primary operating mode.

   Control/Tributary: Select one of three device codes to represent unit control:

   — **Control:** Indicates the device can issue tests and commands to other devices on the same circuit in the network.

   — **Tributary:** Indicates the device receives control data from a control device and from NMS.

   — **Extended Control:** Indicates the device is a tributary that performs control-type functions.

   Inventory Code: Select one of three inventory codes to indicate the status of the device in the network:

   — **Active:** Installed in the network and in use.

   — **Inactive:** Installed in the network but not in use. A user may still issue tests to an inactive device.

   — **Inventory:** The device is not in service in the network but its configuration information remains in the network database.

Serial Number: An optional field containing a unique manufacturing number (maximum 8 numeric characters) found on the device. If the device is a control device, or a leased tributary device, NMS will update this information for all active devices if this field is left empty.

Circuit Name: The name of the circuit as assigned by your local carrier (maximum 25 characters).

Dialing Phone Number: The complete telephone number (maximum 40 alphanumeric characters) used to access the device. You can use spaces, hyphens (**-**), and parentheses as fillers for easier reading. Include any modifiers (such as **#** or *****), leading digits (such as 1, 9, or 0), area code, or AT commands.

Valid characters are **0** to **9**;*, **#**, **A**, **B**, **C**, **D** (DTMF digits); **P** (pulse dialing); **T** (tone dialing); **,** (pause for time specified in the Pause Time device option); **W** or **+** (wait for dial tone); **R** (reverse dial); @ (wait for quiet answer); **!** (hook flash); **;** (return to Command mode); **space**, **comma**, **(**, **)**, **–** (characters for readability).

Examples: 1-813-555-2000, ATD9W5552000.

Network Address: A descriptive label that serves as the device's unique address in the network. An ADp network address is required for a control device or a leased tributary device. If you change the address of a control device, NMS automatically updates the address of its tributary devices.

Control Device – Format: **c/l** Example: 1/2

where: **c** = 1 (the device's control channel)
l = a local control device address between 1 and 256.

Tributary Device – Format: **c/l/t** Example: 1/2/1

where: **c** = 1 (the device's control channel)
l = a local control device address between 1 and 256.
t = 1 (tributary address)

NOTE:

If the selected device is a DSU with a DBM, the next available address will be reserved. For example, if address 1/2 is used, then the next available address is 1/4 since 1/3 is reserved for the DBM.

Comments: Additional device information (maximum 40 characters).

Primary Contact: The name of the person to contact for this device (maximum 25 characters). If a new Primary Contact name is entered, NMS prompts inquiring if the new name may be added to the NMS database.

Secondary Contact: The name of the person to contact if you cannot reach the primary contact (maximum 25 characters). If a new Secondary Contact name is entered, NMS prompts inquiring if the new name may be added to the NMS database.

Site: An optional field that designates the geographic location of the network device (maximum 15 characters). The site field does not display if the device is a carrier device. The site name must be unique to all other network element names in the network. If a new site name is entered, NMS prompts inquiring if the new name may be added to the NMS database.

Example: Lakeland DPC

Carrier: Required only if the device is a carrier card. Each carrier name (maximum 15 characters) must be unique to all other network element names. A carrier can hold up to 16 devices. If a new carrier name is entered, NMS prompts inquiring if the new name may be added to the NMS database.

Example: TPA-001

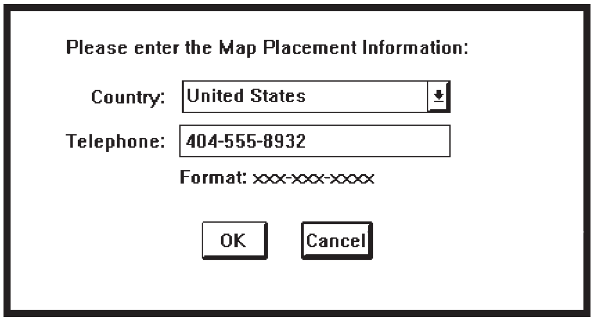
Carrier Slot: Required only if the device is a carrier card. The carrier slot is a number (1 through 16, left to right) that specifies the device's position in the carrier.

If the selected device is a DSU or APL with a TDM or multipoint feature installed, an additional carrier slot will be reserved.

Position: Required only if the device is a Model 3821*Plus* modem. Select the current position of the 3821*Plus* modem: A (top), B (middle), or C (bottom).

6. If this is a carrier device, choose Save from the Action menu (see Table 4-1) to save the device information.

   If this is a standalone device, choose either Save from the action menu to save the device information, or Save and Place from the Action menu to place the device on the Network Map. If you choose Save and Place, a dialog box appears asking for the following map placement information.



Please enter the Map Placement Information:

Country: United States

Telephone: 404-555-8932

Format: xxx-xxx-xxxx

Country: Use the selection list button to select the country where the device is located.

Telephone: Enter the telephone number, including the area code, if the device is in the United States or Canada. Enter the city code if the device is not in the United States or Canada.

Choose OK to place the device on the Network Map.

NOTE:

To delete a device defined as an endpoint at a facility, you must first remove the device from the facility.

Configuring Device Options

Device options are resident in the device when it is installed in the network. (Refer to the device's installation/operations manual for a description of device options.) Using **Device Options** commands, you can upload these device options from a device, change the device options, then download the new device options to the device through NMS.

You can also save device options to a User File, then download device options from the User File to a single device or to multiple devices of the same model type.

In addition, **Device Options** commands allow you to compare two device options configurations for the same model type so you can view any differences between them.

To view, compare, print, or change device options, upload or read device options into the Edit Area of the input form. Use the **Action** commands (Table 4-2) to complete configuration.

The Action menu, accessed from Device Options configuration, differs from other configuration Action menus (compare Tables 4-1 and 4-2).

Table 4-2. Action Commands Accessed from Device Options (1 of 2)

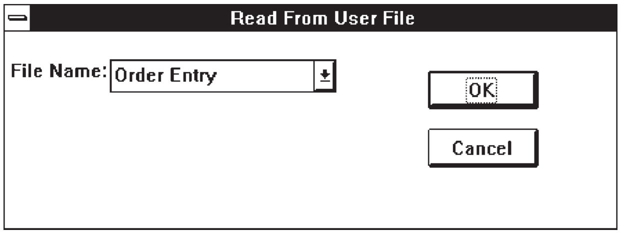
Action Commands	Functions	Procedures
Read From User File	Allows you to display device options from a file that you select.	1. Choose Read From User File. 2. Select a file name. 3. Choose OK.
Write To User File	Saves the device options information from the Edit Area to a file name that you select or create.	1. Choose Read From User File, or choose Upload From Device. 2. Change device options in the Edit area. 3. Choose Write To User File. 4. Enter a filename. 5. Choose OK.
Delete User File	Removes a file that you select from the NMS database containing device options information.	1. Choose Delete User File. 2. Enter a filename. 3. Choose Delete.

Table 4-2. Action Commands Accessed from Device Options (2 of 2)

Action Commands	Functions	Procedures
Upload From Device	Allows you to display device options from a device that you select.	1. Choose Upload From Device. 2. Choose Device Name. 3. Select a device. 4. Select one of the Device Option Areas. 5. Select one of the device option groups. 6. Choose Upload.
Download To Device	Sends device options information from a Device Options Area to the device(s) that you select.	1. Choose Download To Device. 2. Select a device or devices. 3. Select one of the Device Option Areas. 4. Select the receiving device(s). 5. Choose Download.
Copy Device Options in Device	Copies device options from one area to another within a device.	1. Choose Copy Device Options in Device. 2. Select a device or devices. 3. Select one of the areas from the Copy From Area list. 4. Select one of the areas from the Copy To Area list. 5. Select a device(s) from the Devices list. 6. Choose Copy.
Reset Device Options	Returns all Edit Area device options that you changed to the values initially obtained through the **Read From User File** or **Upload From Device** commands.	1. Choose Read From User File, or choose Upload From Device. 2. Choose Reset Device Options. 3. Choose OK.
Compare Device Options	Displays two device options configurations side by side so you can view any differences between them.	See *Comparing Device Options* on page 4-21.
Print	Prints the current device options values displayed in the **Edit Area** or Compare Area for a device or User File that you select.	1. Choose Read From User File, or choose Upload From Device. 2. Choose Print. See *Comparing Device Options* on page 4-21.

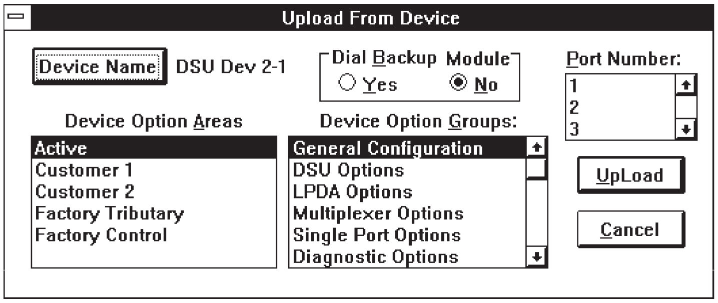
▶ Procedure

1. Select Config from the Main Menu, or select the Device Options icon in the toolbar and go on to Step 5.
2. Choose Network from the Config menu.
3. Choose Devices from the Network cascading menu.
4. Choose Device Options from the Devices cascading menu.
5. Choose Action from the Device Options menu.
6. From the Action menu, choose Read From User File if you want to display the device options from a selected User File.



File Name: Order Entry

7. From the Action menu, choose Upload From Device if you want to display the device options from a specific device and start the Upload function.



Device Name: DSU Dev 2-1

Dial Backup Module: ○ Yes ● No

Port Number:
1
2
3

Device Option Areas:
Active
Customer 1
Customer 2
Factory Tributary
Factory Control

Device Option Groups:
General Configuration
DSU Options
LPDA Options
Multiplexer Options
Single Port Options
Diagnostic Options

Device Name: Select Device Name to access the Selection Browser and select a device. Refer to *Device Selection* in Appendix A, *NMS Windows Conventions*, for additional information on using the Selection Browser.

Dial Backup Module: For DSU devices, select Yes to upload device options from the DBM or select No to upload device options from the DSU.

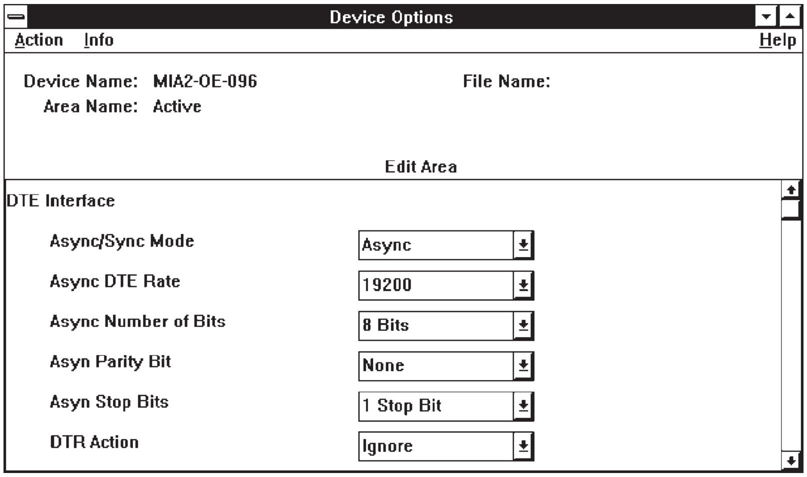
Device Option Areas: Select a Device Option Area. A Device Option Area is a complete set of device options that are stored within a device, for example, Active Operating or Async Dial.

Device Option Groups: Select a Device Option Group. A Device Option Group is a set of similar device options that are stored within a group, for example, DSU Options or DTE Interface.

Port Number: For DSUs or APLs with either TDM, MCMP, or MSD installed, select the port number for which the device options will appear if the group references port information.

File Name: Use the selection list button on the Read From User File window to access an existing file name. A file name identifies the User File you created that holds a specific configuration of device options.

8. Choose OK to start the read from user file function and to display the Device Options Configuration input form. Or, choose Cancel to cancel the function.



Device Name: MIA2-OE-096
Area Name: Active
File Name:

DTE Interface

Async/Sync Mode	Async
Async DTE Rate	19200
Async Number of Bits	8 Bits
Asyn Parity Bit	None
Asyn Stop Bits	1 Stop Bit
DTR Action	Ignore

The Device Options Configuration input form displays the following fields:

Device Name: A label (maximum 15 characters) that is unique to the network.

Area Name: A label (maximum 15 characters) used to identify a configuration area or set of device options stored within the device.

Examples: Active Operating, Async Dial.

File Name: A label (maximum 15 characters) that identifies the User File you created to save a specific configuration of device options.

9. Using the selection list button to the right of the field, select device options that display on the Device Options Configuration input form.

10. Choose one of the following commands from the Action menu (Table 4-2):

    — Write To User File

    — Delete User File

    — Download To Device

    — Reset Device Options

    — Compare Device Options (see *Comparing Device Options* on page 4-21)

    — Print

NOTE:

If you change device options via the front panel, you will receive an error message warning you that the option(s) you changed could be invalid.

Comparing Device Options

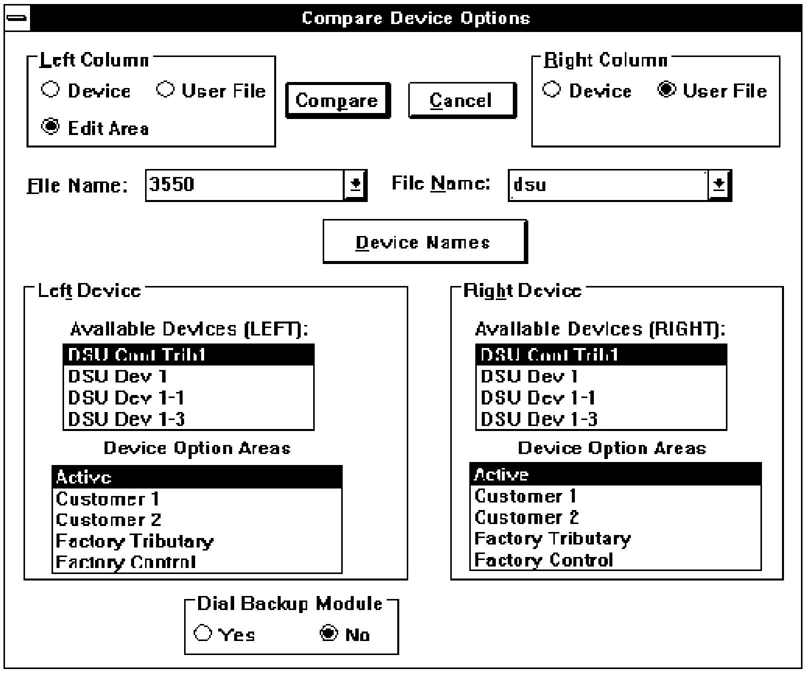
Use the **Compare Device Options** command from the Device Options Action menu to match one set of device options with another. The comparison displays as a side-by-side view of the two sets of device options. Those device options that differ are highlighted in yellow. If you print the comparison, an asterisk (*) prints next to the value in the **Right Column** that differs from the value shown in the **Left Column**. You cannot directly compare device option areas for the same device.

CAUTION:

If you have made changes to device options, save them to a User File before you begin the Compare function. Otherwise, your changes to device options will be lost.

▶ Procedure

1. Select Config from the Main Menu, or select the Device Options icon in the toolbar and go on to Step 5.
2. Choose Network from the Config menu.
3. Choose Devices from the Network cascading menu.
4. Choose Device Options from the Devices cascading menu.
5. Choose Action from the Device Options menu.
6. Choose Compare Device Options from the Action menu. The Compare Device Options window appears.



Left Column ○ Device ○ User File ● Edit Area

Right Column ○ Device ● User File

File Name: 3550

File Name: dsu

Left Device

Available Devices (LEFT):
DSU Cont Trib1
DSU Dev 1
DSU Dev 1-1
DSU Dev 1-3

Device Option Areas
Active
Customer 1
Customer 2
Factory Tributary
Factory Control

Right Device

Available Devices (RIGHT):
DSU Cont Trib1
DSU Dev 1
DSU Dev 1-1
DSU Dev 1-3

Device Option Areas
Active
Customer 1
Customer 2
Factory Tributary
Factory Control

Dial Backup Module ○ Yes ● No

7. Select an option button in the Left Column to choose one of the following:

   Device: Selecting this button activates the Left Device list box. Use the Device Names button to access the Selection Browser. Refer to *Device Selection* in Appendix A, *NMS Windows Conventions*. Select a device and the device options area from the list box to compare the device options of the selected device.

   User File: Selecting this button activates the File Name field. Select a User File with the selection list button to compare the device options of the selected user file.

   Edit Area: Selecting this button uses the current device option information read from a User File or uploaded from a device for comparison.

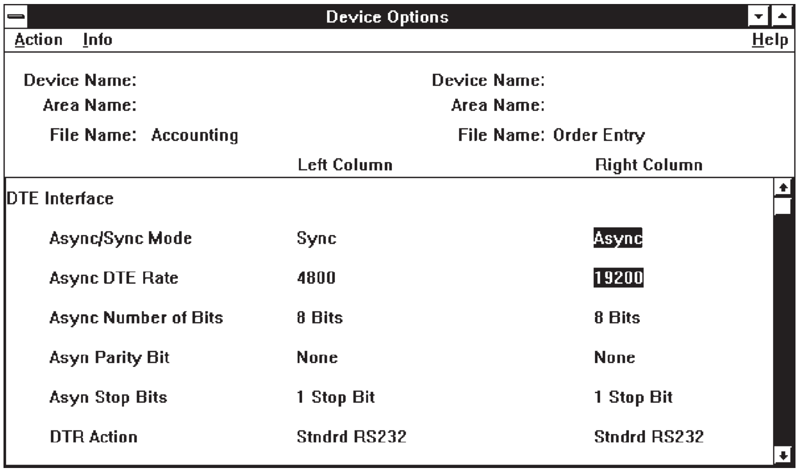
8. Select an option button in the Right Column to activate one of the following:

   Device: Selecting this button activates the Right Device list box and gives you access to the Selection Browser. Refer to *Device Selection* in Appendix A, *NMS Windows Conventions*, for additional information on using the Selection Browser. Select a device from the Available Devices list box and a device option from the Device Option Areas list box to compare device options of the selected device.

   User File: Selecting this button activates the File Name field. Select a User File with the selection list button to compare the device options of the selected user file.

If the selected device is a DSU and you want to compare . . .	Then choose Yes in the . . .
Device options	Dial Backup Module box.
Port options	Port Box.

9. Choose Compare. A device options comparison appears with a side-by-side view of the two sets of device options.



Device Name:
Area Name:
File Name: Accounting

Device Name:
Area Name:
File Name: Order Entry

DTE Interface	Left Column	Right Column
Async/Sync Mode	Sync	Async
Async DTE Rate	4800	19200
Async Number of Bits	8 Bits	8 Bits
Asyn Parity Bit	None	None
Asyn Stop Bits	1 Stop Bit	1 Stop Bit
DTR Action	Stndrd RS232	Stndrd RS232

Those values in the **Right Column** that do not match the values in the **Left Column** are highlighted in yellow. If no data is available for the column, capital Xs are automatically inserted.

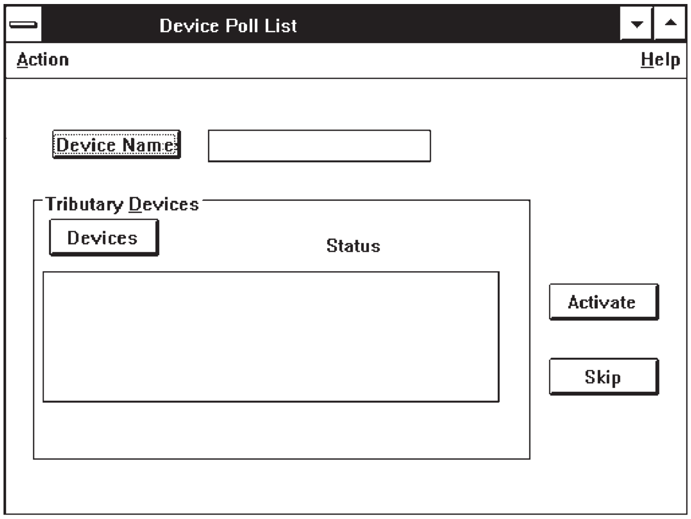
10. To print the device options comparison, choose Print from the Action menu. An asterisk (*) is printed next to the value in the **Right Column** that differs from the values shown in the **Left Column**.

Creating a Device Poll List

The **Device Poll List** commands allow you to create a new device poll list, download the poll list to the selected device, display the nonconfigured device addresses, and print the poll list.

▶ Procedure

1. Select Config from the Main Menu, or select the Device Poll List icon in the toolbar and go on to Step 5.
2. Choose Network from the Config menu.
3. Choose Devices from the Network cascading menu.
4. Choose Device Poll List from the Devices cascading menu. The Device Poll List input form appears.



5. Enter the following information in the fields on the Device Poll List input form:

   Device Name: A label (maximum 15 characters) that is unique to the network. Selecting the Device Name button gives you access to the Selection Browser. Refer to *Device Selection* in Appendix A, *NMS Windows Conventions,* for additional information on using the Selection Browser. The device must be configured as a leased device.

   Tributary Devices: A list of all tributary devices assigned to the Device Poll List and their status:

   — **Active:** The device is active.

   — **Activate:** The device has been selected to become active upon download.

   — **Deleted:** The device has been deleted from the poll list.

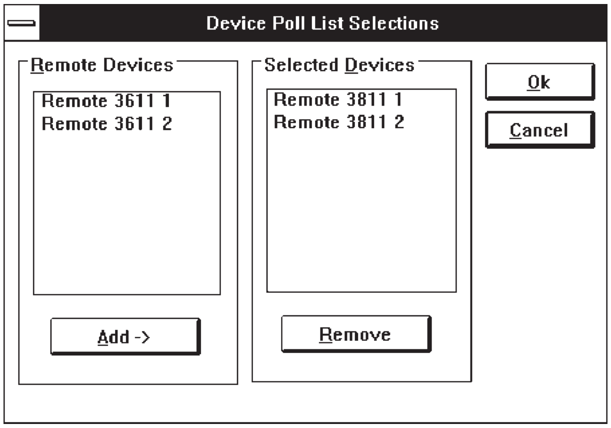
   — **Skipped:** The device will be skipped during a poll.

6. From the Action menu, choose Acquire to establish a new polling list by sending a message to all tributary devices that can be configured from the current network address. Or, choose Display to display what is stored in the local device. Abort cancels the Acquire request.

   NOTE:

   Acquire can take up to 20 minutes if multipoint is configured. If you already know the contents of the poll list, you can build the list using the Device button, then choose Download. This will save some time.

7. If desired, choose Devices to change the poll list to which the shown tributary devices are assigned. The Device Poll List Selection dialog box appear.



8. Select remote device names from the Remote Devices group box that contain the same beginning network address as the local device name.

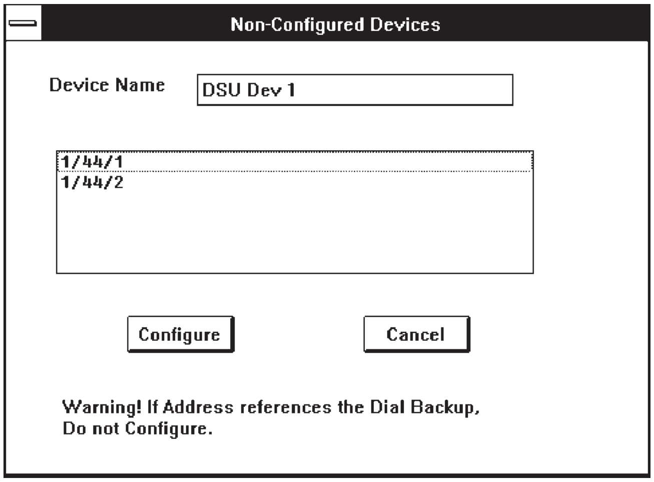
   Example: Local Device Address = 1/20
   Remote Device Address = 1/20/2, 1/20/2/1, 1/20/2/2

9. Choose Add to add to the Selected Devices group box. Choose Remove to remove devices from the Selected Devices list.

10. Choose OK to apply these changes to the Tributary Devices list in the Device Poll List window. The Device Poll List Selection dialog box closes.
11. Choose Activate to change all selected devices in the Tributary Device list box to an active status upon download. Choose Skip to change all selected devices in the Tributary Device list box to a skip status upon download.
12. Choose Action from the Device Poll List input form menu bar.
13. Choose Download to download the currently displayed poll list if you constructed one.
14. Choose Non-Configured to display all nonconfigured device addresses received from the last Acquire or Display request.
15. Choose Print to print the Device Poll List Report.

Adding Nonconfigured Devices to the Device Profile

All nonconfigured tributary device addresses received from the last Acquire or Display request appear in the Non-Configured Devices window. These devices can be added to the NMS device profile database.



Device Name: DSU Dev 1

1/44/1
1/44/2

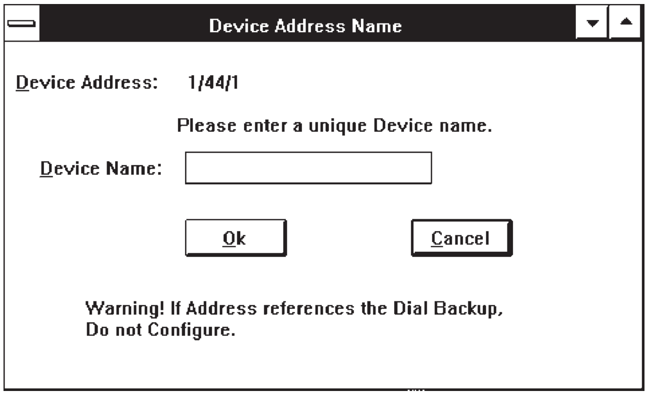
Warning! If Address references the Dial Backup, Do not Configure.

▶ Procedure

1. Select a device address by either:
   - — Using the selection list button to the right of the field to access existing field entries, or
   - — Typing the information in the **Device Name** field.

     If the device is a DSU with a DBM attached, the next address will be for the DBM. Any DBM address that appears should not be selected for configuration. NMS automatically configures the DBM when the DSU is configured.

2. Choose Configure. The Device Address Name dialog box appears.



Device Address Name

Device Address: 1/44/1

Please enter a unique Device name.

Device Name:

Warning! If Address references the Dial Backup,
Do not Configure.

3. Type a unique device name in the **Device Name** field for the address shown.
4. Choose OK. The device is added to the device profile. The device address is removed from the list shown in the Non-Configured Devices window.

NOTE:

It is recommended that you complete the device profile with other pertinent information such as site, contacts, etc.

Configuring a Device Phone Directory

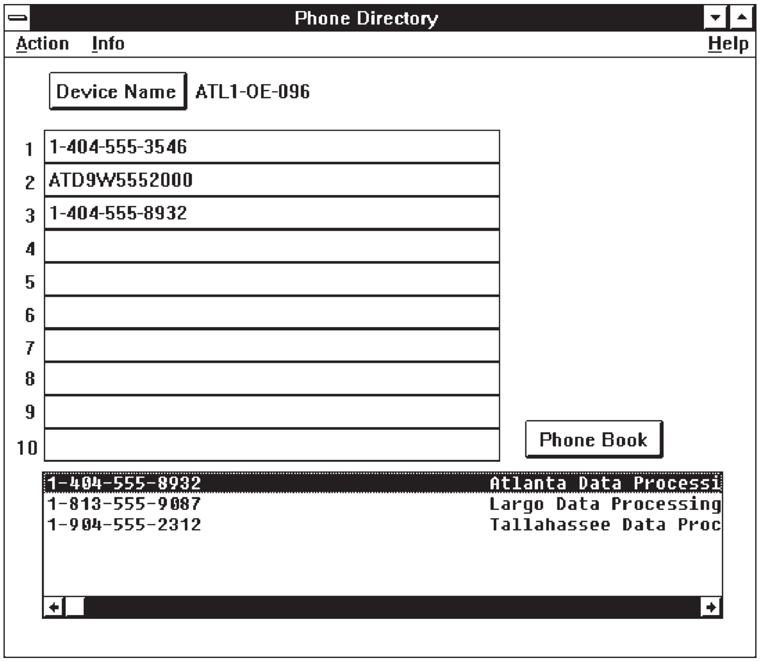
Phone Directory commands allow you to create, change, or delete telephone numbers stored in a 2400 Series device, 3800 Series device, a 3900 Series device, a 3600 Series DSU with the dial backup feature, or a 3611 Series DBM-V or DBM-S device. You can also upload telephone numbers from a device's Phone Directory or download telephone numbers to a device's Phone Directory.

The maximum number of telephone numbers that can be stored depends upon the device model. A 2400 Series device can store up to 20 telephone numbers. All other device types can store up to 10 telephone numbers.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Network from the Config menu.
3. Choose Devices from the Network cascading menu.

4. Choose Phone Directory from the Devices cascading menu. The Phone Directory input form appears.



Device Name ATL1-OE-096

1 1-404-555-3546
2 ATD9W5552000
3 1-404-555-8932
4
5
6
7
8
9
10

1-404-555-8932 Atlanta Data Processi
1-813-555-9087 Largo Data Processing
1-904-555-2312 Tallahassee Data Proc

5. Choose Device Name and select a name from the device selection list. If the device already has a Phone Directory, go to Step 6. If you are creating a new Phone Directory, go to Step 8.

6. Choose Action from the Phone Directory menu.

7. Choose Upload From Device from the Action menu. The current device Phone Directory appears.

8. Enter a new phone number on the Phone Directory input form by either:

   — Typing in a phone number in one of the numbered fields, or

   — Choosing Phone Book, selecting a phone number, and dragging the cursor (now in the shape of a book) to one of the numbered fields.

9. Delete phone numbers by using the Delete key.

10. Choose Action from the Phone Directory menu.

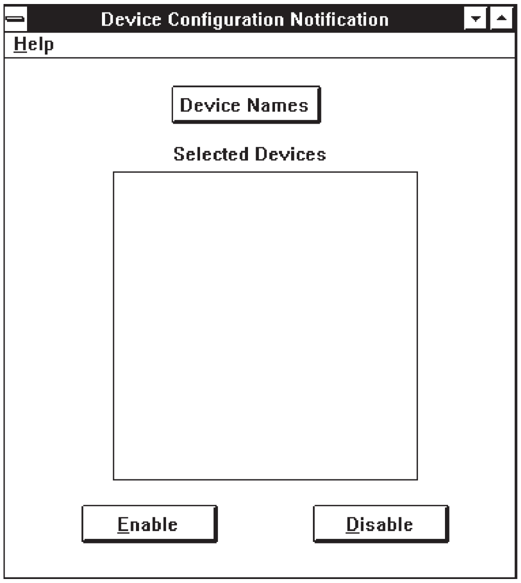
11. Choose Download to Device to store the Phone Directory in the device.

Setting Change Configuration Notification

The **Configuration Notification** command allows you to create an alert anytime a user modifies a device from the front panel. Also use this command to disable this feature.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Network from the Config menu.
3. Choose Devices from the Network cascading menu.
4. Choose Configuration Notification from the Devices cascading menu. The Device Configuration Notification input form appears.



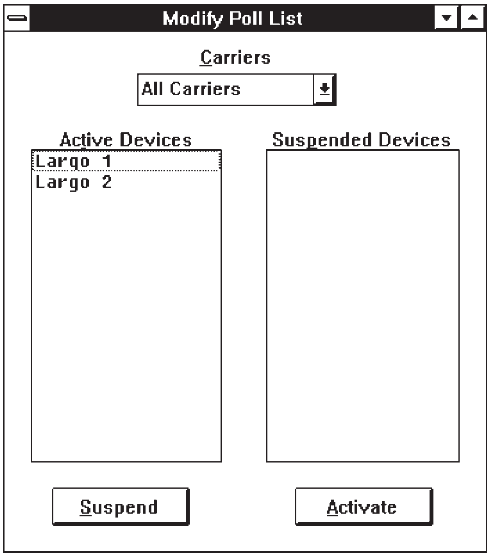
5. Select a device from the Selected Devices list box, or press the Device Names button to access the Selection Browser. Refer to *Device Selection* in Appendix A, *NMS Windows Conventions*, for additional information on using the Selection Browser.
6. Choose Enable or Disable, as appropriate.

Modifying a Poll List

The **Poll List Modification** command allows you to suspend or activate a local device configured within NMS. Configuration information recorded in the database is not affected.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Network from the Config menu.
3. Choose Devices from the Network cascading menu.
4. Choose Poll List Modification from the Devices cascading menu. The Modify Poll List input form appears.



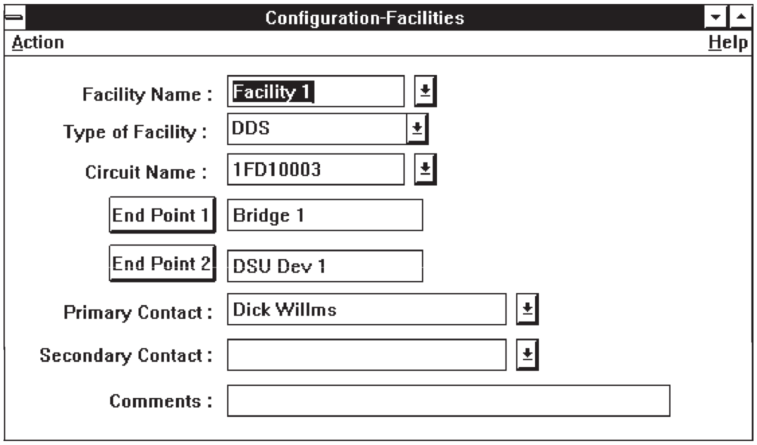
5. Select the affected carriers in the Carriers field.
6. Suspend devices by selecting devices listed in the Active Devices list, then choosing Suspend. Activate devices by selecting devices listed in the Suspended Devices list, then choosing Activate.

Configuring a Facility

Facility Configuration commands allow you to create, change, delete, or print information used to specify the type of facility on the circuit.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Network from the Config menu.
3. Choose Facilities from the Network cascading menu. The Facilities Configuration input form appears.



Facility Name : Facility 1
Type of Facility : DDS
Circuit Name : 1FD10003
End Point 1: Bridge 1
End Point 2: DSU Dev 1
Primary Contact : Dick Willms
Secondary Contact :
Comments :

4. Enter the following information in the fields on the Facilities Configuration input form.

   Facility Name: A required field that must be unique for all other network element names (maximum 15 characters).

   Type of Facility: Designates the type of facility on the circuit. Select DDS, APL, or Other.

   Circuit Name: Identifies the value assigned by the carrier (maximum 25 characters). This information is used in problem resolution.

   EndPoints 1 and 2: A label that is unique to the network identifying the device at the endpoint (maximum 15 characters). Selecting the Endpoint 1 or Endpoint 2 button gives you access to the Selection Browser. Refer to *Device Selection* in Appendix A, *NMS Windows Conventions,* for additional information on using the Selection Browser.

   Primary Contact: The name of the person to contact for the device at the endpoint 1 location or the facility provider (maximum 25 characters).

   Secondary Contact: The name of the person to contact for the device at the endpoint 2 location or the facility provider (maximum 25 characters).

   Comments: Additional facility information (maximum 40 characters).

5. Choose Save or one of the other commands from the Action menu (see Table 4-1).

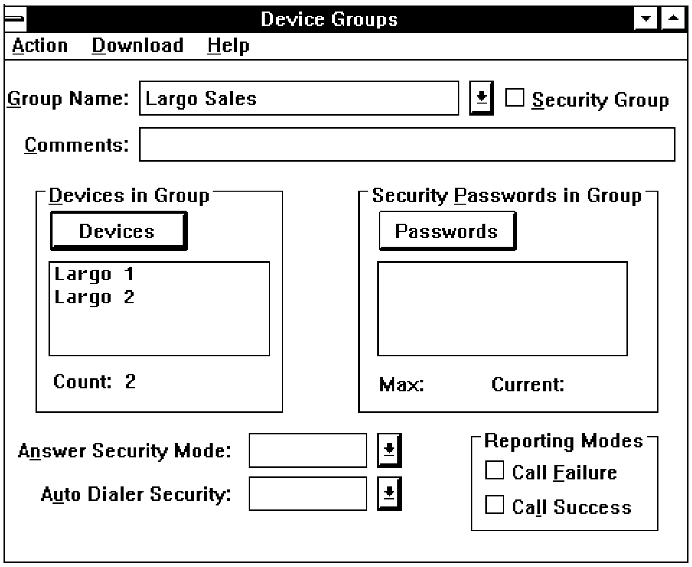
Configuring a Device Group

A device group is a user-defined category that identifies a set of devices. Creating a device group provides you easier access to a device when you use the Selection Browser (see *Device Selection* in Appendix A, *NMS Windows Conventions*). You may want to group devices that have similar characteristics, such as geographic location (Southern Region) or functional type (control modems).

Device Groups commands allow you to create, change, delete, or print device group configuration information.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Network from the Config menu.
3. Choose Device Groups from the Network cascading menu. The Device Groups Configuration input form appears.



Group Name: Largo Sales ☐ Security Group

Comments:

Largo 1
Largo 2

Count: 2

4. Enter the following information in the fields on the Device Groups Configuration input form.

   Group Name: A label (maximum 15 characters) that is unique to the network and used to identify a set of devices.

   Comments: An optional field for additional device group information (maximum 40 characters).

NOTE:

The other fields appearing on this form consist of enhancements provided by the Security Manager feature. This feature is documented in the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

The list of devices currently in the device group you selected appears in the lower portion of the Device Groups Configuration input form.

5. To add devices to the device group, choose Devices**,** then choose Add to Selection(s) to add devices to the displayed device list using the Selection Browser. Refer to *Device Selection* in Appendix A, *NMS Windows Conventions*, for additional information on using the Selection Browser.
6. To delete devices from the device group, select one or more devices from the displayed device list, and choose Delete Device.
7. Choose Save or one of the other commands from the Action menu (see Table 4-1).

Configuring Network Alerts and Events

To define the device alerts that the network will monitor, select Config from the Main Menu and then choose Alerts and Events.

Alert controls assign priority levels and duration filters to alerts that devices report to NMS. Any device that does not have a specific alert control configuration uses the alert controls for the device model.

NOTE:

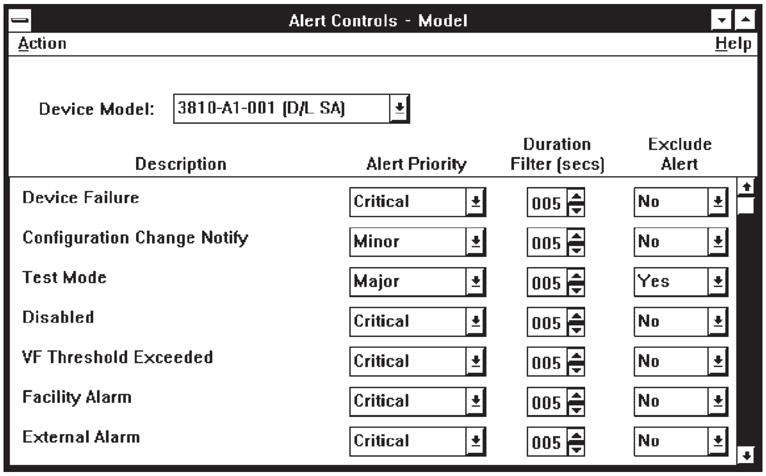
Event controls are detailed in the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

Configuring Alert Controls for a Device Model

Alert Controls – Model commands allow you to change or print configuration information used to specify alert reporting parameters. Defining alerts for a device model allows you to configure alert controls for multiple devices. The alert controls that you select pertain to all devices of that model type.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Alerts and Events from the Config menu.
3. Choose Alert Controls – Model from the Alerts and Events menu. A window appears with a Device Model field.
4. Select a device model using the selection list button to the right of the Device Model field. The Alert Controls – Model Configuration input form appears.



Device Model: 3810-A1-001 (D/L SA)

Description	Alert Priority	Duration Filter (secs)	Exclude Alert
Device Failure	Critical	005	No
Configuration Change Notify	Minor	005	No
Test Mode	Major	005	Yes
Disabled	Critical	005	No
VF Threshold Exceeded	Critical	005	No
Facility Alarm	Critical	005	No
External Alarm	Critical	005	No

5. Select a value in the following three fields for each alert:

   Alert Priority: Describes the severity level of the alert. Select either Critical, Major, or Minor.

   Duration Filter (secs): Select a number between 0 and 300 seconds to define the amount of time NMS waits to report the alert. Refer to *Range Field* in Appendix A, *NMS Windows Conventions,* for details on using this field.

   Exclude Alert: Select either:

   — **No** to include the alert type in the list of alerts reported by NMS, or

   — **Yes** to ignore the alert.

   Refer to the Glossary for specific alert definitions.

6. Choose Save or one of the other commands from the Action menu (see Table 4-3).

Table 4-3. Action Commands (Alerts)

Action Commands	Functions	Procedures
Save	Stores the alert controls to the network database.	1. Complete the input form. 2. Choose Save.
Reset	Restores the display of alert controls to the values currently stored in the database for that model.	1. Select a device or device model on the input form. 2. Choose Reset.
Default	Restores the display of alert controls to the original values of the device model without affecting the database.	1. Select a device or device model on the input form. 2. Choose Default.
Print	Prints the alert controls information currently stored in the database.	1. Select a device or device model on the input form. 2. Choose Print.

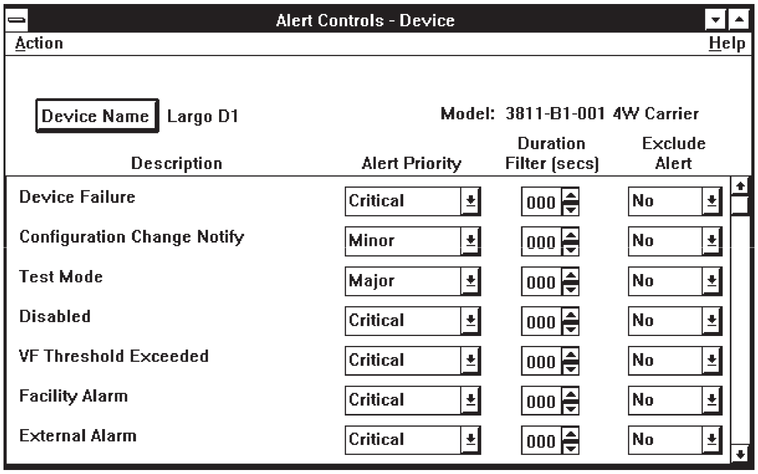
Configuring Alert Controls for a Device

Alert Controls – Device commands allow you to change or print configuration data used to specify alert reporting parameters. Any device that does not have a specific alert control configuration uses the alert controls for the device model.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Alerts and Events from the Config menu.
3. Choose Alert Controls – Device from the Alerts and Events menu. A window displays with a Device Name button.
4. Choose Device Name.
5. Select a device from a displayed device selection list or by using the Selection Browser. Refer to *Device Selection in* Appendix A, *NMS Windows Conventions*, for additional information on using the Selection Browser.

   The Alert Controls – Device Configuration input form appears.



Device Name: Largo D1

Model: 3811-B1-001 4W Carrier

Description	Alert Priority	Duration Filter (secs)	Exclude Alert
Device Failure	Critical	000	No
Configuration Change Notify	Minor	000	No
Test Mode	Major	000	No
Disabled	Critical	000	No
VF Threshold Exceeded	Critical	000	No
Facility Alarm	Critical	000	No
External Alarm	Critical	000	No

6. Select a value in the following three fields for each alert:

   Alert Priority: Describes the severity level of the alert. Select either Critical**,** Major, or Minor.

   Duration Filter (secs): Select a number between 0 and 300 seconds to define the amount of time an alert exists before NMS reports it. Refer to *Range Field* of Appendix A, *NMS Windows Conventions*, for details on using this field.

   Exclude Alert: Select either:

   — **No** to include the alert type in the list of alerts reported by NMS, or

   — **Yes** to ignore the alert.

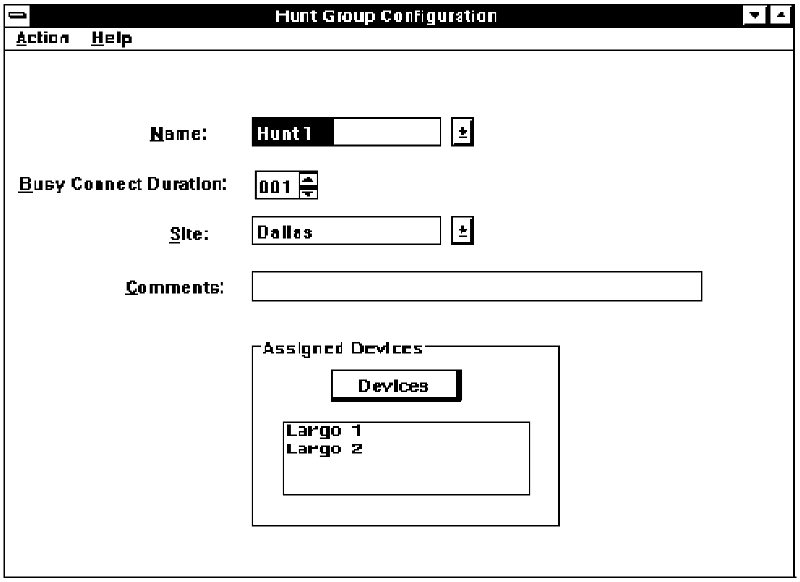
7. Choose Save or one of the other commands from the Action menu (see Table 4-3).

Configuring Hunt Groups

The **Hunt Group** command allows you to configure the amount of time NMS uses to determine when a busy connect alarm should be created.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Alerts and Events from the Config menu.
3. Choose Hunt Group from the Alerts menu. The Hunt Group Configuration input form appears.



Name: Hunt1

Busy Connect Duration: 001

Site: Dallas

Comments:

Assigned Devices
Largo 1
Largo 2

4. Enter the following information in the fields on the Hunt Group Configuration input form by either:
   - Using the selection list button to the right of the field to access existing field entries, or
   - Typing the information in the field, then pressing Tab.

Name: A name that is unique to the network (maximum 15 characters).

NOTE:

To change the hunt group name, use the **Change Name** command on the Action menu.

Busy Connect Duration: Amount of time (0–60 minutes) NMS uses to determine when a busy connect alarm should be created. This alarm is created when all devices assigned to the hunt group are connected for this length of time. Set this field to 0 to disable the busy connect alarm.

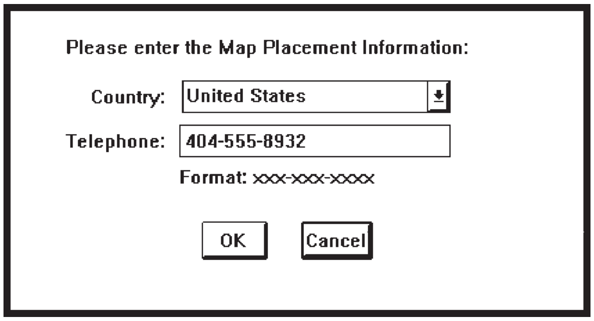
Site: Optional site name (maximum 15 characters).

Comments: Optional field for additional information (maximum 40 characters).

Assigned Devices: Select the Devices button to access the Device Selection List dialog box and build a list of devices for this hunt group. A device can only be assigned to one hunt group. Refer to *Device Selection* in Appendix A, *NMS Windows Conventions*, for additional information on using the Selection Browser.

5. Either choose Save from the Action menu (see Table 4-1) or go to Step 6 to save and place the site on the Network Map.
6. Choose Save and Place from the Action menu to place the site on the Network Map.

   A dialog box appears asking for the following map placement information.



Please enter the Map Placement Information:

Country: United States

Telephone: 404-555-8932

Format: xxx-xxx-xxxx

Country: Use the selection list button to select the country where the site is located.

Telephone: Enter the telephone number, including the area code, if the site is in the United States or Canada (maximum 20 characters). Enter the city code if the site is not in the United States or Canada.

7. Choose OK to place the site on the Network Map.

NOTE:

If a hunt group is not assigned to a site or has not been placed using the **Save and Place** command, you can place the hunt group using the **Unplaced** command.

Configuring Event Controls

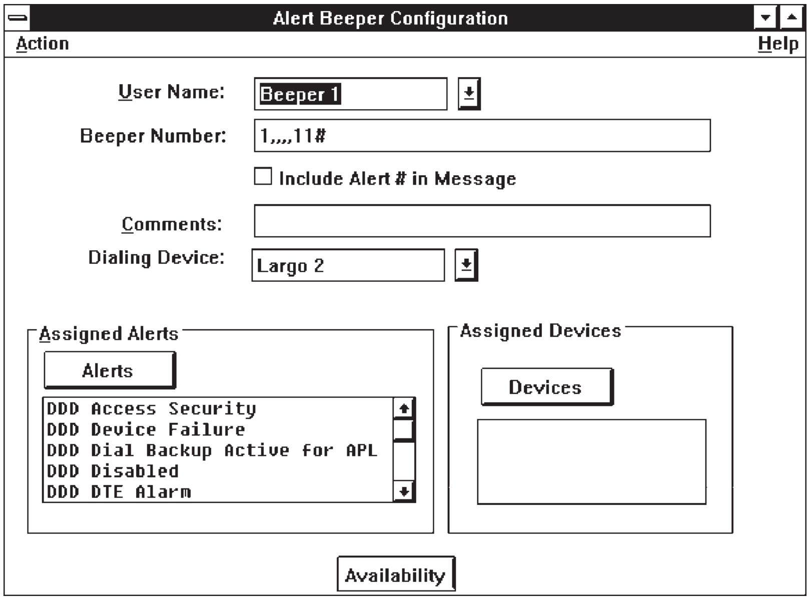
To configure event controls, refer to the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

Configuring the Alert Beeper

The **Alert Beeper** command allows you to define a beeper number that will be used when a specific alert is created. A beeper number can be assigned to both devices and alerts. If a beeper number is assigned to a device, the beeper will only be called when an alert for that device is in effect.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Alerts and Events from the Config menu.
3. Choose Alert Beeper from the Alerts and Events menu. The Alert Beeper Configuration input form appears.



User Name: Beeper 1

Beeper Number: 1,,,,11#

☐ Include Alert # in Message

Comments:

Dialing Device: Largo 2

DDD Access Security
DDD Device Failure
DDD Dial Backup Active for APL
DDD Disabled
DDD DTE Alarm

4. Enter the following information in the fields on the Alert Beeper Configuration input form by either:
   - — Using the selection list button to the right of the field to access existing field entries, or
   - — Typing the information in the field, then pressing Tab.

User Name: A label (maximum 15 characters) that is unique to the network and is used to identify an alert beeper number user.

Beeper Number: A required field for the telephone number that will be used to dial the beeper when assigned alerts have been created (maximum 40 characters). If the number includes a message that will be sent after the call has been established, you must enter the number of pauses (,) needed prior to sending the message. Valid characters are **0** to **9**; *****, #, **A**, **B**, **C**, **D** (DTMF digits); **P** (pulse dialing); **T** (tone dialing); **,** (pause for time specified in the Pause Time device option); **W** or **+** (wait for dial tone); **R** (reverse dial); @ (wait for quiet answer); **!** (hook flash); **;** (return to Command mode); **space**, **comma**, **(**, **)**, **–** (characters for readability).

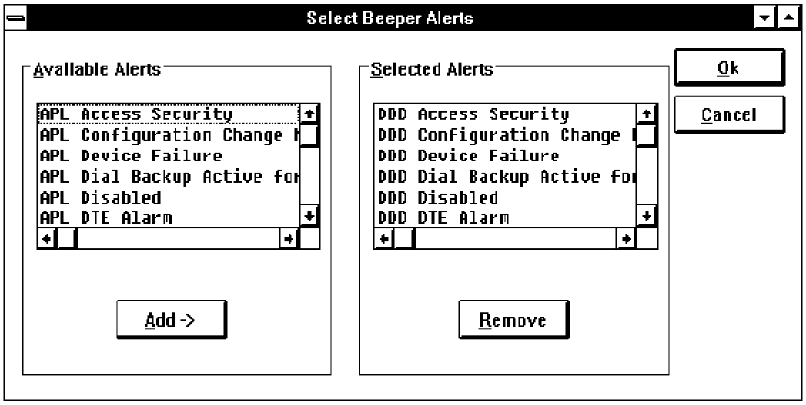
Example: 9W555-1212,,,,1234

Include Alert # in Message: Check this box to append a 2-digit alert number to the beeper number entered. See *Alert Numbers* on page 4-39 for a list of alert numbers with descriptions and priority.

Comments: An optional field for additional alert beeper information (maximum 40 characters).

Dialing Device: An optional field that identifies the name of a local device that will be used to dial the beeper numbers. If no device is selected, the first available idle device is used.

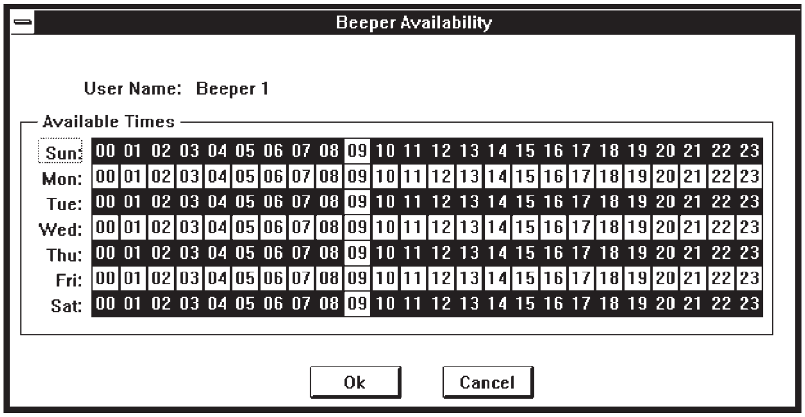
5. Choose Selected Alerts to display the Select Beeper dialog box which allows you to associate alerts with this beeper number.



Available Alerts:
- APL Access Security
- APL Configuration Change N
- APL Device Failure
- APL Dial Backup Active for
- APL Disabled
- APL DTE Alarm

Selected Alerts:
- DDD Access Security
- DDD Configuration Change
- DDD Device Failure
- DDD Dial Backup Active fo
- DDD Disabled
- DDD DTE Alarm

6. To create an Assigned Alerts list, select the desired alerts from the Available Alerts list, then choose Add to add them to the Selected Alerts list. Or, select desired alerts from the Selected Alerts list, then choose Remove to delete them from the Selected Alerts list.
7. Choose OK to close the Select Beeper Alerts dialog box and display the list just created on the Alert Beeper Configuration input form in the Assigned Alerts list.
8. To associate device names with this beeper number, choose Devices to open the Device Selection List dialog box. Make your selection(s), then choose OK. This list appears on the Alert Beeper Configuration input form in the Assigned Devices list.
9. Choose Availability to display the Beeper Availability dialog box. This dialog box allows you to indicate what hours of the day NMS will dial the beeper.



User Name: Beeper 1

Sun:	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mon:	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Tue:	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Wed:	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Thu:	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Fri:	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sat:	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

10. Select a box by clicking with the left mouse button, or select a group of boxes by clicking and dragging the mouse to include desired boxes in a selection rectangle. Also, you can select a day of the week. A dark gray box indicates ON, while a light gray box indicates OFF. Individual boxes toggle ON or OFF. For a group in a rectangular selection box, the value is set to the inverse of the value of the box in the top left corner. For a group selected by week day, the value is set to the inverse of the value of that day's 00 hour.
11. Choose OK to save the values selected.
12. Choose one of the commands from the Action menu (see Table 4-4).

Alert Numbers

Tables 4-4 (APL) and 4-5 (DSU) include alert numbers, description, and severity level.

Table 4-4. Alert Control Numbers for APL Devices

Alert #	Alert Description	Priority	Alert #	Alert Description	Priority
0	Device Failure	Critical	13	Firmware Downloading	Major
1	Configuration Change Notify	Minor	14	Make Busy Mode	Minor
2	Test Mode	Major	15	Service Line	Minor
3	Disabled	Critical	16	Non-answering Modem	Critical
4	Out of Threshold	Critical	17	Short Holding Time Modem	Critical
5	Facility Alarm	Critical	18	Sub Tree Truncation	Minor
6	External Alarm A	Critical	19	Good APL While On Backup	Minor
7	Streaming Terminal	Critical	20	Bad Backup While On APL	Minor
8	Access Security,1.0	Major	21	PSTN Test Failed	Minor
9	Dial Backup Active for APL	Minor	23	External Alarm B	Critical
10	DTE Alarm	Major	30	Group Busy	Major
11	Sub-normal Operating Speed	Major	31	No Response	Critical
12	Primary Channel Interrupted	Major			

Table 4-5. Alert Control Numbers for DSU Devices

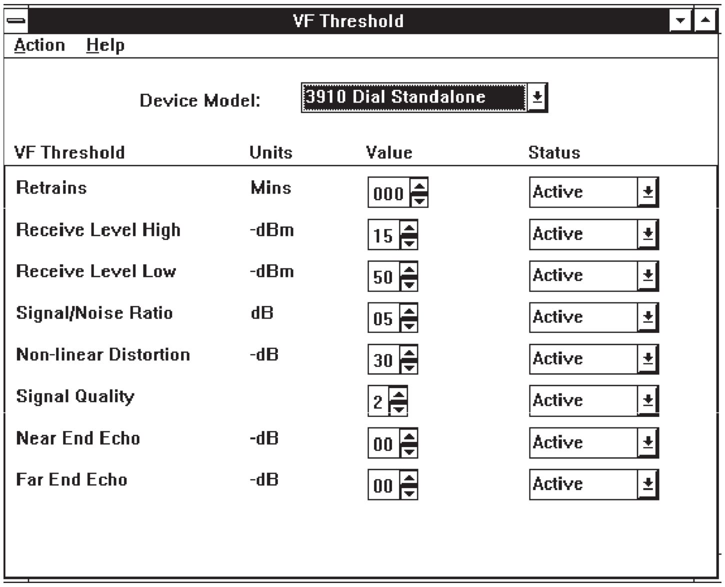
Alert #	Alert Description	Priority
0	Device Failure	Critical
1	Configuration Change Notify	Minor
2	Test Mode	Major
3	Disabled	Critical
4	Out of Threshold	Critical
5	Facility Alarm	Critical
6	External Alarm	Critical
7	Streaming Terminal	Critical
9	Dial Backup	Minor
10	DTE Alarm	Major
11	Sub-normal Operating Speed	Major
18	Sub Tree Truncation	Minor
19	TDM Failure	Critical
20	Tributary Timeout	Major
21	Dial Tone	Critical
22	Redundant Power Supply	Minor
31	No Response	Critical

Configuring VF Threshold

The **Threshold** command allows you to upload/download VF threshold values to an APL device, and read/write these same values to a file. The threshold values determine when a VF threshold has reached an unacceptable level to cause an alert.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose Alerts and Events from the Config menu.
3. Choose Thresholds from the Alerts and Events menu. The Device Model drop-down list box appears.
4. Select the desired device model. The VF Threshold input form appears.



Device Model: 3910 Dial Standalone

VF Threshold	Units	Value	Status
Retrains	Mins	000	Active
Receive Level High	-dBm	15	Active
Receive Level Low	-dBm	50	Active
Signal/Noise Ratio	dB	05	Active
Non-linear Distortion	-dB	30	Active
Signal Quality		2	Active
Near End Echo	-dB	00	Active
Far End Echo	-dB	00	Active

5. Select a value in the following two fields for each VF threshold:

   Value: Select a value from the numeric range field to represent the lowest acceptable threshold value. Refer to *Range Field* in Appendix A, *NMS Windows Conventions,* for details on using this field.

   Status: The current status of the particular threshold entry. Select:

   — **Active** if the threshold value will be used to determine a VF threshold alert, or

   — **Disable** if the threshold value will not be used to determine a VF threshold alert due to the device’s configuration, or

   — **InActive** if the threshold value will not be used to determine a VF threshold alert, or

   — **NoSupport** if the device does not support this threshold entry

6. Choose one of the commands from the Action menu (see Table 4-6).

Table 4-6. Action Commands (Device Options)

Action Commands	Functions	Procedures
Read Threshold File	Allows you to display threshold values from a file that you select.	1. Choose Read Threshold File. 2. Select a file name. 3. Choose OK.
Write Threshold File	Saves the threshold values from the Edit Area to a file name that you select or create.	1. Choose Read Threshold File, or choose Upload Thresholds. 2. Change threshold values in the Edit Area. 3. Choose Write Threshold File. 4. Enter a filename. 5. Choose OK.
Delete Threshold File	Removes a file that you select from the NMS database containing threshold value information.	1. Choose Delete Threshold File. 2. Enter a filename. 3. Choose Delete.
Upload Threshold File	Allows you to display threshold values from a device that you select.	1. Choose Upload Threshold File. 2. Choose Device Name. 3. Select a device. 4. Choose Upload.
Download Threshold File	Allows you to send threshold values to a device that you select.	1. Choose Download Threshold File. 2. Select a device or devices. 3. Choose Download.
Get Defaults	Displays the defaults for the current device model.	1. Select a device or devices. 2. Choose Get Defaults.
Print	Prints the current device options values displayed in the Edit Area or Compare Area for a device or User File that you select.	1. Choose Read From User File, or choose Upload From Device. 2. Choose Print. See *Comparing Device Options* on page 4-21.

Configuring System Attributes and Options

To configure the system attributes and options, choose Config from the Main Menu and then choose System. From the System cascading menu, you can define the operational criteria for NMS using the following commands:

- **System Options.** Activates the following functions: Collect Alert History, Alert Acknowledgement Required, Active Sound Alarm, Print Alerts, Collect Event History, Use 48 Colors, Sort Telephone by Comments, Collect and Record Call Statistics.
- **User Profile.** Defines NMS users.
- **Customer Name.** Defines the text used in the NMS windows' title bar and in report headings.
- **Phone Book.** Creates and updates the network telephone book.
- **System Colors.** Allows you to change the colors used in the system's displays.
- **Communications.** Describes the NMS device/PC connection.
- **Printer Setup.** Defines the NMS default printer.
- **VF Thresholds.** Defines thresholds for VF impairments.
- **Purge Calls.** Purges all calls for the number of days selected in System Options.
- **Purge Alerts.** Purges all alerts for the number of days selected in System Options.

Setting System Options

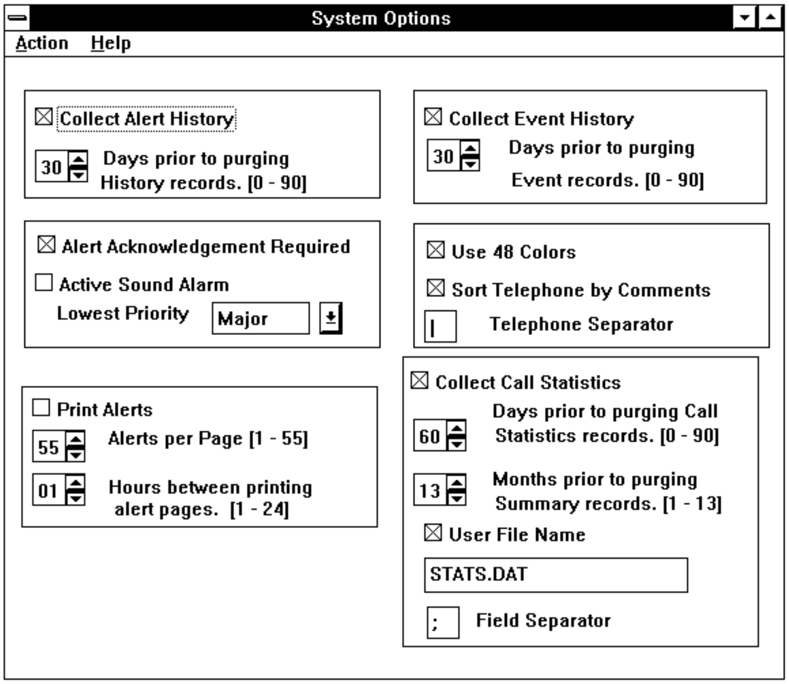
You can choose to activate or deactivate certain system functions and criteria using the **System Options** commands. Choose from the following functions:

- Collect Alert History
- Alert Acknowledgement Required
- Active Sound Alarm
- Print Alerts
- Collect Event History
- Use 48 Colors
- Sort Telephone by Comments
- Collect Call Statistics
- User File Name to Record Call Statistics

The **Collect Event History** option is detailed in the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose System from the Config menu.
3. Choose System Options from the System menu. The System Options input form appears.



☒ Collect Alert History
30 Days prior to purging History records. [0 - 90]

☒ Alert Acknowledgement Required
☐ Active Sound Alarm
Lowest Priority Major

☐ Print Alerts
55 Alerts per Page [1 - 55]
01 Hours between printing alert pages. [1 - 24]

☒ Collect Event History
30 Days prior to purging Event records. [0 - 90]

☒ Use 48 Colors
☒ Sort Telephone by Comments
| Telephone Separator

☒ Collect Call Statistics
60 Days prior to purging Call Statistics records. [0 - 90]
13 Months prior to purging Summary records. [1 - 13]
☒ User File Name
STATS.DAT
; Field Separator

4. Select the check box to the left of one or more of the following fields, then make your selection in the number range fields:

   Collect Alert History: Select the check box if you want NMS to record all alerts in an alert history file. The alert history can then be displayed or printed via the Alert History Report. (See *Alert History* in Chapter 10, *Reports*.)

   Use the number range field to select the number of days to keep active history records (Default = 30 days).

   Alert Acknowledgement Required: Select the check box if you want NMS to require you to acknowledge alerts. Otherwise, all alerts are automatically acknowledged by NMS.

   Active Sound Alarm: Select the check box if you want NMS to beep when an alert comes in. Use the Lowest Priority list box to select the lowest alert priority level for the alert to sound (Critical, Major, or Minor). The default is minor. NMS uses the sound assigned to the asterisk in the Windows Sound application.

Print Alerts: Select the check box if you want NMS to spool alerts to a file and print them on a regular basis.

Use the number range fields to select the number of alerts you want printed per page (Default = 55) and the number of hours between alert printouts (Default = 24).

The system prints when the selected number of alerts is reached, or according to the time interval you select even if the number of reported alerts is fewer than specified for a page. To obtain a printed copy of each alert as it occurs, set the page length to 1.

NOTE:

The **Collect Event History** option is detailed in the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

Use 48 Colors: Select the check box if you want NMS to use up to 48 system colors. Use the System Colors command on the System cascading menu to select the specific colors you want NMS to use.

NOTE:

If your hardware will not handle 48 colors and you check this box, your colors will bleed together. In this case, you can unselect the box without adverse effects.

Sort Telephone by Comments: Select this check box if you want to sort telephone numbers by comments. If you do not check this box, the numbers in the Dial application are sorted by telephone number.

Enter a character in the **Telephone Separator** field to use between the telephone comment and the telephone number. The default is **|**.

Collect Call Statistics: Select the check box if you want NMS to record call statistics information. You can process the data that NMS collects by using the Call Statistics functions. (See Chapter 6, *Statistics*.)

Use the number range fields to select the number of days to keep active call statistics records (default = 30 days) and the number of months to keep summary statistical records (default = 13 months).

User File Name: Select the check box if you want to record call statistics to a file that can be used by applications other than NMS. Also, you can repost statistical data into the database using the ASCII statistical file that you identify here.

Enter the name of the file to be used to store the call statistics in the **User File Name** field. This file will be written to the directory assigned to the DBDIR environment variable contained in the AUTOEXEC.BAT file.

Enter a character in the **Field Separator** field to be used between fields of the call statistics file. A carriage return always terminates a record.

NOTE:

If you use this feature, you need 80 bytes of disk space per call.

NOTE:

NMS always adds records to the end of the file. Therefore, rename the statistical file prior to processing the records. A new file is then generated.

5. Choose Save or one of the other commands from the Action menu (See Table 4-1).

The sequence of fields within a call statistics file are shown in Table 4-7.

Table 4-7. Statistics File Fields

Field	Length
Local Device Name	15
Remote Device Name	15
Speed	6
Disconnect Reason	3
Connect Date	6
Connect Time	6
Disconnect Date	6
Disconnect Time	6
Duration	7

Example:
Local Device 11;Remote Device2;014400;000;920728;
101152;920728;101217;0000025;

The disconnect reason codes are shown in Table 4-8.

Table 4-8. Disconnect Reason Codes

Code	Reason
0	Normal Disconnect
1	Invalid Number
2	No Dial DTR
3	No Dial Tone
4	Busy Signal
5	Trunk Busy
6	No Answer Tone
7	No Prompt Tone
8	Line Current Disconnect
9	Long Space Disconnect
10	No Data Disconnect
11	Remote Command Disconnect
12	DTR Disconnect
13	CD Disconnect
14	EC Disconnect
15	VF Password Timeout
16	Unknown VF Password
17	User ID Timeout
18	DTE Password Timeout
19	Unknown DTE Password
20	Missing Originate Access Password
21	Invalid Originate Access Password
22	DTR Dial Blocked

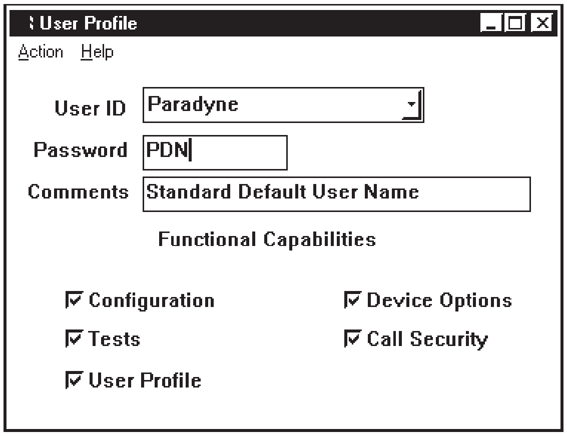
Defining NMS Users

User Profile commands allow you to define the NMS users and their system privileges.

A user who has the User Profile privilege can assign or change User IDs, passwords, and system privileges for all other users on NMS. Users without the User Profile privilege can change only their own User ID, password, and comments.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose System from the Config menu.
3. Choose User Profile from the System cascading menu. The User Profile Configuration input form appears.



User ID: Paradyne

Password: PDN

Comments: Standard Default User Name

Functional Capabilities

☑ Configuration

☑ Tests

☑ User Profile

☑ Device Options

☑ Call Security

4. Enter the following information in the fields on the User Profile Configuration input form.

   User ID: A unique identifier for an NMS user. Use case-sensitive alphanumeric characters (maximum 15 characters).

   Password: An identifier for an NMS user. Use case-sensitive alphanumeric characters (maximum 8 characters).

   Comments: Additional information (maximum 40 characters).

   Configuration: An NMS system privilege that allows you to maintain network configuration records.

   Device Options: An NMS system privilege that allows you to perform any device options operation, such as changing or downloading device options.

   Tests: An NMS system privilege that allows you to perform device tests and line tests through NMS.

NOTE:

The **Call Security** field appearing on this form consists of an enhancement provided by the Security manager feature. This feature is documented in the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

User Profile: An NMS system privilege that allows you to define or change all user login information including User IDs, passwords and system privileges.

NOTE:

The User Profile privilege is for the administrator.

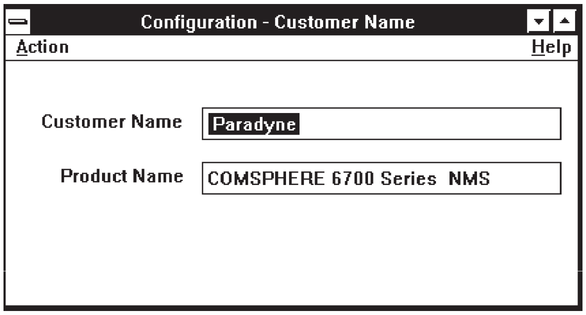
5. Choose Save or one of the other commands from the Action menu (see Table 4-1).

Defining the Customer Name

Customer Name commands allow you to create or change the customer name and the product name which NMS displays in window and report titles.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose System from the Config menu.
3. Choose Customer Name from the System cascading menu. The Customer Name Configuration input form appears.



Customer Name: Paradyne

Product Name: COMSPHERE 6700 Series NMS

4. Type the following information in the fields on the Customer Name Configuration input form:

   Customer Name: The name of your company (maximum 40 characters) that displays at the top of NMS generated reports.

   Product Name: The name of the product (maximum 40 characters) that appears on start-up, login, and Main Menu windows.

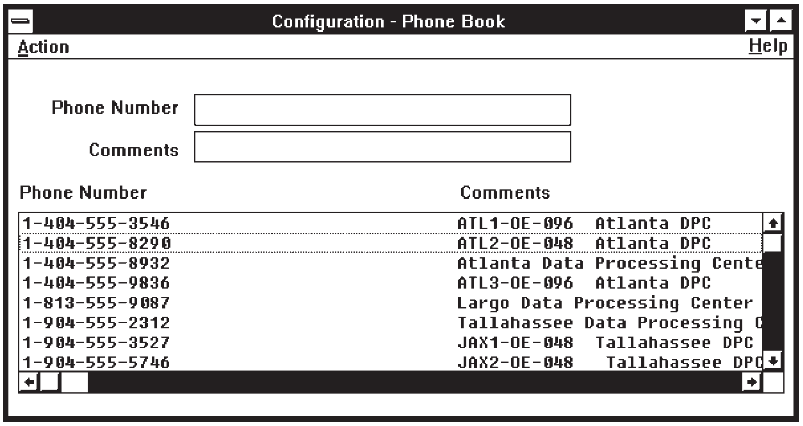
5. Choose Save or one of the other commands from the Action menu (see Table 4-1).

Creating the Network Phone Book

Phone Book commands allow you to list or change the telephone numbers used in NMS to contact personnel or to contact a specific device. You can access the telephone numbers in the Phone Book when you are configuring a device's Phone Directory (see *Configuring a Device Phone Directory* on page 4-26) or when you are completing a call to a device (see Chapter 8, *Dial Function*).

▶ Procedure

1. Select Config from the Main Menu, or select the Device Phone Number icon in the toolbar and go to Step 4.
2. Choose System from the Config menu.
3. Choose Phone Book from the System cascading menu. The Phone Book Configuration input form appears.



Phone Number	Comments
1-404-555-3546	ATL1-OE-096 Atlanta DPC
1-404-555-8290	ATL2-OE-048 Atlanta DPC
1-404-555-8932	Atlanta Data Processing Cente
1-404-555-9836	ATL3-OE-096 Atlanta DPC
1-813-555-9087	Largo Data Processing Center
1-904-555-2312	Tallahassee Data Processing C
1-904-555-3527	JAX1-OE-048 Tallahassee DPC
1-904-555-5746	JAX2-OE-048 Tallahassee DPC

4. To display an existing number in the **Phone Number** field, select the number from the lower portion of the window.

   Enter the following information in the fields on the Phone Book Configuration input form:

   Phone Number: The complete telephone number (maximum 40 alphanumeric characters) used to access a device or contact person. You can use spaces, hyphens (-), and parentheses as fillers for easier reading. Include any modifiers, leading digits (such as 1, 9, or 0) area code, or AT commands.

   Examples: 1-813-555-2000, ATD9W5552000

   Comments: An optional field for additional telephone number information (maximum 40 characters). You can sort by comments if you choose to do so with the Systems Options command.

5. Choose Save or one of the other commands from the Action menu (see Table 4-1).

Defining System Colors

System Color commands allow you to choose the colors NMS displays to signal alert conditions, describe network status, and draw the Network Map.

Use the commands in the Groups menu to access the color group to be changed. Table 4-9 describes the color groups found in the Groups menu and the elements in the color group that have colors assigned.

Table 4-9. Groups Commands (System Colors)

Groups	Color Group Elements	Default Colors
Alerts	Acknowledged Critical	Red Brown
	Acknowledged Major	Olive
	Acknowledged Minor	Sea Green
	Alert Background	Gray (light)
	No Alert	Green
	Unacknowledged Critical	Red
	Unacknowledged Major	Yellow
	Unacknowledged Minor	Cyan
Network Map	Boundaries	Purple
	Land	Gray (light)
	Map Background	Black
	Water	Blue
Carrier Monitor	Empty Carrier Slot	Gray (dark)
Devices	Unsupported	Gray (dark)
	Inventory	White
	Suspended	Magenta
Tests	Test in Progress	Magenta
DTE Signals	Signal Changing	Yellow
	Signal Off	White
	Signal On	Green (medium dark)
Statistics	Bar	Red
Statistics	Busied Out	Red
	Connected	Green
	Idle	Blue
	Test	Yellow

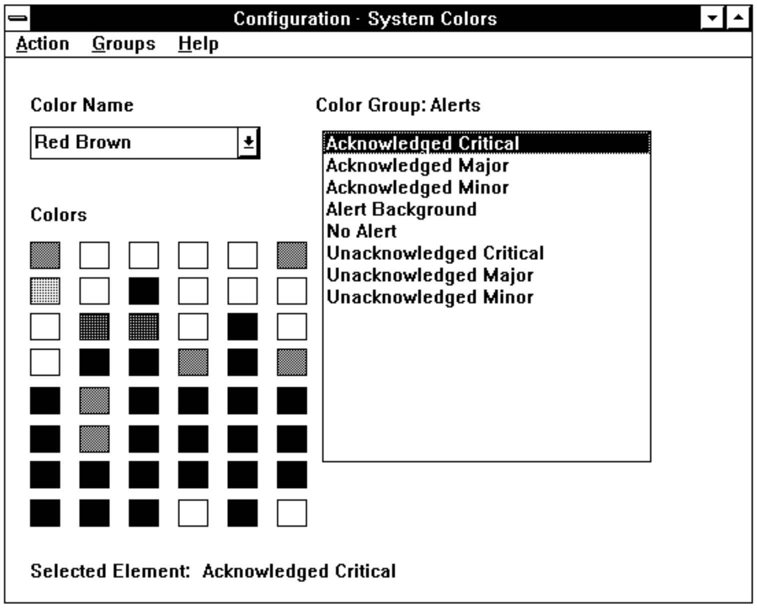
Use the commands in the Action menu to save or reset the System Colors.

NOTE:

Security Events Colors consist of enhancements provided by the Security Manager feature. This feature is documented in the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose System from the Config menu.
3. Choose System Colors from the System cascading menu.
4. Choose Groups from the System Colors menu.
5. To access the color group to be changed, select the color group from those listed in Table 4-9. The System Colors window appears.



Color Name: Red Brown

Color Group: Alerts

- Acknowledged Critical
- Acknowledged Major
- Acknowledged Minor
- Alert Background
- No Alert
- Unacknowledged Critical
- Unacknowledged Major
- Unacknowledged Minor

Selected Element: Acknowledged Critical

6. Select a color group element in the Color Group list box. The current color for this color group element appears in the **Color Name** field, the **Colors** field (the current color is highlighted with a thick box), and the **Selected Element** field.
7. Select a color by selecting a box in the Colors palette section of the System Colors window, or by using the selection list button to the right of the Color Name field.

   Repeat Steps 6 and 7 until you select all of the group elements that are to be changed.

NOTE:

Not all monochrome printers interpret colors the same way. Printing color windows using a black and white printer may result in black text on a black background or white text on a white background. If this occurs, try changing the background colors to a light color (white) with everything contained in them dark.

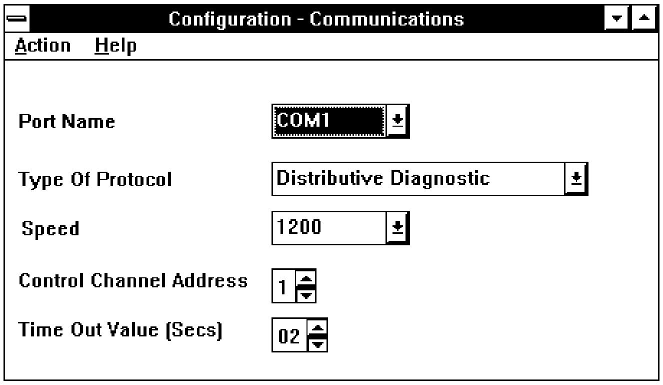
8. Choose one of two commands from the Action menu:
   - — **Save** to store your color selections to the network database, or
   - — **Reset** to restore the color selections to the NMS default colors.

Configuring the NMS Communications Environment

Use the **Communications** commands to define the port, protocol, speed, control channel address, and time out value NMS uses to communicate with network devices.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose System from the Config menu.
3. Choose Communications from the System menu. The Communications Configuration input form appears.



Port Name: COM1

Type Of Protocol: Distributive Diagnostic

Speed: 1200

Control Channel Address: 1

Time Out Value (Secs): 02

The following fields are on the Communications Configuration input form:

Port Name: The serial port name (COM1—COM10) used by NMS.

4. Using the **Port Name** field, select the port name from the NMS. Do not select a port used by other equipment attached to the PC, such as a serial mouse.

Type of Protocol: The type of protocol to be used by NMS. Valid entries are as follows:

- — **Diagnostic.** This ADp protocol is used to perform network management functions and diagnostics.
- — **Distributive Diagnostic.** This ADp protocol is used to perform network management functions and diagnostics on all active devices and on all distributive devices when the distributive poll time has elapsed.

Speed: Identifies the communications speed in bps. This is always 1200. All diagnostics configurations must be 1200.

Control Channel Address: The first field of the network address (**1–8**). If the Multichannel feature is enabled, select the appropriate control channel from 1 through 8. Otherwise, 1 is the appropriate selection for this field.

Time Out Value (Secs): The time out value for the COM port (**1–30** seconds).

5. Choose one of the following commands from the Action menu:
   - **Save** to store your communications selections to the network database, or
   - **Delete** to delete the Communications Configuration input form shown.

Setting Up the System Printer

Use the **Printer Setup** command to configure a default printer for NMS and to select alternate printers for NMS functions.

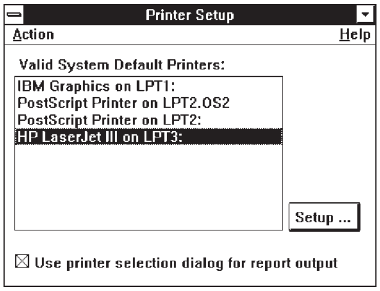
NMS uses the default printer for all system generated output, such as the alert log. You can also use the default printer for all user generated output.

However, you may not always want to print to the default printer. For example, you may want to use another type of printer for reports, a graphics printer for Call Statistics, or you may want to print to a file to postpone the print function.

Using the **Printer Setup** command, you can configure the print function so that each time you select Print, NMS prompts you to choose between the default printer or another printer selection.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose System from the Config menu.
3. Choose Printer Setup from the System menu. The Printer Setup window appears with the following fields:



Valid System Default Printers:

IBM Graphics on LPT1:
PostScript Printer on LPT2.OS2
PostScript Printer on LPT2:
HP LaserJet III on LPT3:

☒ Use printer selection dialog for report output

Valid System Default Printers: A list of the printers that you installed during the Windows Setup program. The currently selected NMS default printer is highlighted.

Use printer selection dialog for report output: Select this check box if you want the system to prompt with the Printer Selection dialog box (see *Printer Selection* in Appendix A, *NMS Windows Conventions*) for an alternative to the default printer whenever the **Print** command is used.

NOTE:

Select this option when the COMSPHERE 6700 NMS Multiuser feature is installed to allow each user to print to a desired printer.

4. Select a printer from the Valid System Default Printers list to choose a default printer.
5. Choose Setup to access options specific to the selected printer (refer to the Windows user's guide). Select the Use printer selection dialog for report output box for the system to prompt with the Printer Selection dialog box for you to choose an alternate printer (other than the default) whenever the **Print** command is used.
6. Choose Save from the Action menu to store your selection in the NMS database.

Defining Thresholds for VF Impairments

Use the **VF Thresholds** commands to define or change the thresholds for VF impairments displayed by NMS.

VF thresholds identify the acceptable level of impairment to the network's lines. You define the upper and/or lower limits for each type of impairment. These limits are the range of values that appear on the VF Status window (accessed through Device Management).

Use the VF Thresholds **Action** Commands (Table 4-10) to save, reset, or print the VF Thresholds.

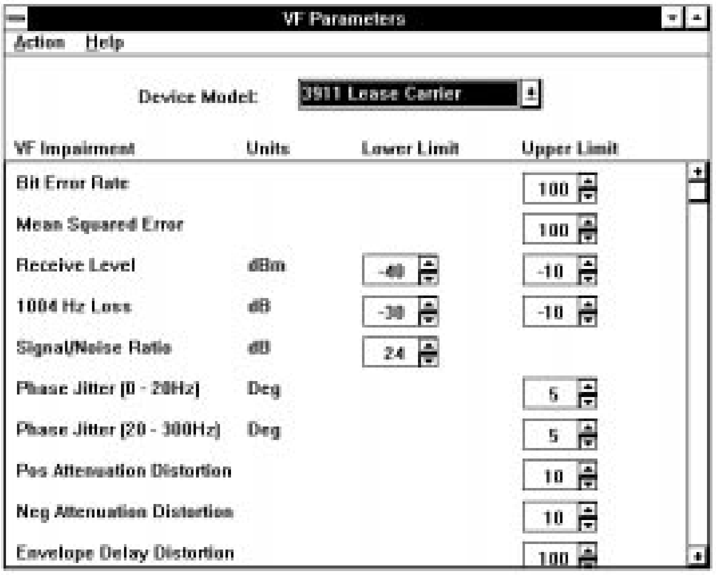
Table 4-10. Action Commands for VF Thresholds

Action Commands	Functions	Procedures
Save	Stores the VF Thresholds to the network database.	1. Complete the input form. 2. Choose Save.
Reset	Restores the display of VF Thresholds to the values currently stored in the database.	1. Display the VF Thresholds input form. 2. Choose Reset.
Default	Restores the display of VF Thresholds to the original values set by NMS without affecting the database.	1. Display the VF Thresholds input form. 2. Choose Default.
Print	Prints the VF Thresholds information currently displayed in the VF Thresholds input form.	1. Complete the input form. 2. Choose Print.

▶ Procedure

1. Select Config from the Main Menu.
2. Choose System from the Config menu.
3. Choose VF Thresholds from the System menu.
4. Select a device model using the selection list button to the right of the Device Model field.

   The VF Thresholds input form appears with the following fields.



Device Model: 3911 Lease Carrier

VF Impairment	Units	Lower Limit	Upper Limit
Bit Error Rate			100
Mean Squared Error			100
Receive Level	dBm	-40	-10
1004 Hz Loss	dB	-30	-10
Signal/Noise Ratio	dB	24	
Phase Jitter (0 - 20Hz)	Deg		5
Phase Jitter (20 - 300Hz)	Deg		5
Pos Attenuation Distortion			10
Neg Attenuation Distortion			10
Envelope Delay Distortion			100

VF Impairment: A line trait (impairment) reported by a device. Table 4-11 lists all the VF Impairments that NMS can report on. This device-dependent information (refer to the device's user's guide for more information on which VF impairments are reported) is reported to NMS only when requested. See *VF Status* in Chapter 7, *Device Management,* for additional information on viewing the VF Impairments.

Table 4-11. VF Impairments

VF Impairment Name	Description
Signal/Noise Ratio	Expressed in decibels (dB), the ratio of the amplitude of the signal plus the noise to the amplitude of the noise.
Phase Jitter (20–300 Hz)	Expressed in degrees, the amount of phase difference (out-of-phase) between the transmitted carrier signal and the received carrier signal.
Non-Linear Distortion	Expressed in dB, the portion of the channel output that is nonlinear in relation to the input signal. Harmonic and intermodulation distortion would cause this kind of distortion.
Frequency Offset	Expressed in Hertz (Hz), the difference between the transmitted carrier frequency and the received carrier frequency.
Gain Hits	The number of positive or negative gain hits during the previous 15 minutes. A gain hit is a three dB change lasting more than four milliseconds.
Phase Hits	The number of phase hits during the previous 15 minutes. A phase hit is a phase change to a 1004 Hz test signal greater than 20 degrees.
Impulse Noise	The number of impulse hits during the previous 15 minutes. An impulse hit is a voltage surge of within six dB of the normal carrier level lasting more than four milliseconds.
Dropouts	The number of dropouts during the previous 15 minutes. A dropout is a normal carrier level decrease greater than 12 dB lasting more than four milliseconds.
Retrains	The number of retransmissions during the previous 15 minutes.
Near End Echo	Expressed in dB, the ratio between the transmit signal and the receiver near end echo of the signal.
Far End Echo	Expressed in dB, the ratio between the transmit signal and the echo from the far end of the signal.
Far End Delay	Expressed in milliseconds (Ms), the roundtrip delay of the far end echo.
Echo Frequency Offset	Expressed in Hz, the frequency offset of the far end echo.
Signal Quality	A number used to indicate the quality of the signal where: 0 Excellent 1 Good 2 Fair 3 Poor 4 No Signal

Units: The unit of measure for this impairment.

dBm = decibels/milliwatt
dB = decibels
Hz = Hertz
Ms = milliseconds

Lower Limit: Not available for every impairment. Using the range field, select a value for the lower limit. Negative or positive numbers are allowed. The lower limit must always be less than the upper limit.

Upper Limit: Not available for every impairment. Using the range field, select a value for the upper limit. Negative or positive numbers are allowed. The upper limit must be greater than the lower limit.

5. Select values in the Upper Limit and Lower Limit fields using the range buttons.

6. Choose Save or one of the other commands from the Action menu (See Table 4-1).

Purging Calls

Choose the **Purge All Calls** command from the System pull-down menu. Once you purge all calls, it is recommended that you perform a complete reorganization of your database. See Chapter 13, *Hard Disk and System Recommendations*, for more information.

Purging Alerts

Choose the **Purge Alerts** command from the System pull-down menu. Once you purge all alerts, it is recommended that you perform a complete reorganization of your database. See Chapter 13, *Hard Disk and System Recommendations*, for more information.

Displays

5

Displays Overview

This chapter explains how to use the Displays menu to access commands that monitor the condition of your complete network or selected devices. The following monitors are available:

- Network Map
- Cabinet Monitor
- Distributive Cabinets
- Carrier Monitor
- Alert Monitor
- Alert Summary
- Hunt Group
- Event Monitor
- Front Panel

NOTE:

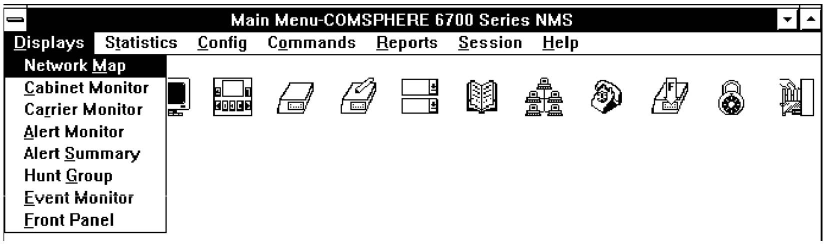
The Event Monitor is detailed in the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

The Displays command menu also provides direct access to the Device Management windows to control and test devices within the network, and to a device's front panel.

Used within Displays are keyboard accelerators and mouse double-click shortcuts. Tables in *Keyboard and Mouse Shortcuts*, starting on page 5-28, list the different accelerators.

Displays Menu

Use the **Displays** commands to monitor the health of the network by viewing color-coded icons representing network elements, locations, and alert status. Select Displays from the Main Menu and the Displays pull-down menu appears.



Conventions and Icons

Within the Displays' monitors, icons and colors are used to show different status conditions. An icon needs to be selected before executing most commands from within Displays.

The Displays icons are explained in Table 5-1. Device and Hunt Group icons appear with the color that represents the highest reported alert. Group icons (site, cluster, cabinet, carrier) and the connectivity lines appear with the color that represents the highest reported alert for any single device. For additional information on the alert colors, see *System Colors* on page 5-4.

Table 5-1. Display Icons (1 of 2)

Icon	Name	Description
✚	Site	Represents a site on the Geographic Map and the Network Hierarchy windows.
⊞	Site, selected	Represents a selected site.
●	Dial Device	Represents a standalone dial device in the Geographic Map and the Network Hierarchy windows.
◙	Dial Device, selected	Represents a selected dial device.
◉	Cluster	Represents a grouping of devices or sites. To improve clarity, the cluster icon displays instead of overlapping site and device icons on the Geographic Map.
▣	Cluster, selected	Represents a selected cluster.
H	Hunt Group	Represents a hunt group on the Geographic Map and Network Hierarchy window.
▤	Cabinet	Represents a cabinet in the Network Hierarchy window.
▤	Cabinet, selected	Represents a selected cabinet.
▥	Carrier	Represents a carrier in the Network Hierarchy window.

Table 5-1. Display Icons (2 of 2)

Icon	Name	Description
▥	Carrier, selected	Represents a selected carrier.
⚡	Leased Line Mode	Represents a device connected to a leased line in the Carrier Monitor.
☎	Dial Line Mode	Represents a device connected to a dial line or a DBM installed on a DSU in the Carrier Monitor.
⤡	Service Line Mode	Represents a device connected to a service line in the Carrier Monitor.
⊘	Busied Out	Represents a busied out device in the Carrier Monitor.
■	Unsupported Device	Represents an unsupported device in the Geographic Map and Network Hierarchy.
□	Unsupported Device, selected	Represents a selected unsupported device.
	DSU Device	Represents a DSU device with no features in the Geographic Map, Network Hierarchy and Connectivity windows.
	DSU Device selected	Represents a selected DSU device.
	DSU TDM/MCMP Device	Represents a DSU device with either the TDM or MCMP feature in the Geographic Map, Network Hierarchy and Connectivity windows.
	DSU TDM/MCMP Device, selected	Represents a selected DSU device with the TDM or MCMP feature.
	DBM-V/S Device	Represents a DBM-V or DBM-S device in the Geographic Map, Network Hierarchy and Connectivity windows.
	DBM-V/S Device, selected	Represents a selected DBM-V or DBM-S device.
◖	APL Device	Represents an APL device in the Geographic Map, Network Hierarchy, and Connectivity windows.
	APL Device selected	Represents a selected APL device.
	APL TDM/MSD Device	Represents an APL device with either the TDM or MSD feature in the Geographic Map, Network Hierarchy and Connectivity windows.
	APL TDM/MSD Device, selected	Represents a selected APL device with the TDM or MSD feature.
	Triple modem device, C selected	Represents which modem (A, B or C) in a Model 3821*Plus* device is selected in the carrier.
	Triple modem device, B selected	Represents which modem (A, B or C) in a Model 3821*Plus* device is selected in the carrier.
	Triple modem device, A selected	Represents which modem (A, B or C) in a Model 3821*Plus* device is selected in the carrier.

System Colors

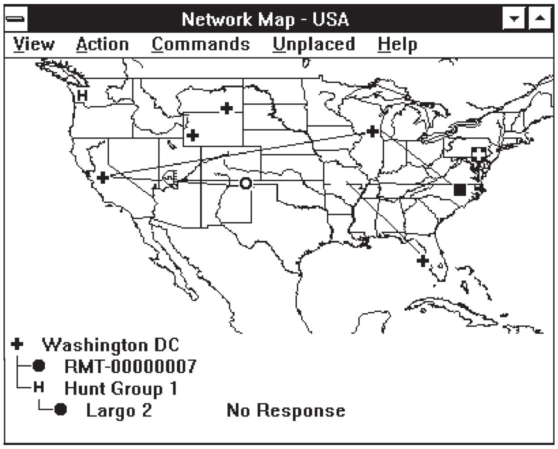
The colors used within Displays represent different alerts and items. Table 5-2 lists the alerts and items used in the Displays windows with the default color and a description. For additional information, see *Defining System Colors* in Chapter 4, *Configuration*.

Table 5-2. Displays System Colors

Alert or Item	Default Color	Description
Critical Alert, Unacknowledged	Red	Indicates a Critical Alert.
Critical Alert, Acknowledged	Red Brown	Indicates an acknowledged Critical alert. For example, a device has failed and a work order has been issued to repair it. Clear the alert (no alert) when the device is repaired.
Major Alert, Unacknowledged	Yellow	Indicates a Major alert (not Critical).
Major Alert, Acknowledged	Olive	Indicates an acknowledged Major alert. For example a device has its configuration changed and a memo written to find out why. Clear the alert when the issue is resolved.
Minor Alert, Unacknowledged	Cyan	Indicates a Minor alert (not Critical or Major alert).
Minor Alert, Acknowledged	Sea Green	Indicates an acknowledged device Minor alert has occurred. For example, a device is in Test mode. No action is required except noting the current status. When the device is not in test mode, clear the alert.
No Alert	Green	Indicates that no failed conditions have been reported for the device.
Alert Background	Gray (light)	Alerts background color.
Land	Gray (light)	Indicates land masses on the Network Map.
Boundary	Purple	Indicates country and state (USA only) borders.
Water	Blue	Outlines bodies of water.
Selected Facility	White	Indicates selected facility line.
Map Background	Black	Network Map background color.
Empty Carrier Slot	Gray (dark)	Indicates an empty slot in the Carrier window.
Unsupported Device	Gray (dark)	Indicates an unsupported device in the Carrier window.
Suspended Device	Magenta	Indicates a device in the suspended state.
Inventory Device	White	Indicates a device in the inventory state.

Network Map

The Network Map window provides various maps and hierarchical displays showing the condition (status) of all or part of the device network. Select Network Map from the Displays pull-down menu, or select the Network Map icon in the toolbar. The Network Map appears as two windows.



✚ Washington DC
├● RMT-00000007
└H Hunt Group 1
 └● Largo 2 No Response

On the top of the screen is the Geographic Map window, which uses icons and colors to show the conditions of the network. See *Conventions* on page 5-2 for listings showing the icons and colors used. On the bottom of the screen is the Network Hierarchy window, which shows the selected icon(s) name and relationships.

Selecting an icon in the Geographic Map window causes the Network Hierarchy window to display the names and relationships of the devices, cabinets, carriers, and/or associated sites with the current alert status.

The menu bar provides **View**, **Action**, **Commands**, and **Unplaced** options.

View

Select View from the Network Map menu bar to change the view in the Geographic Map window. The View pull-down menu has the World View command and up to six user-defined view commands. Next to one of the view names is an asterisk (*), which indicates the default view. Choose one of the View commands to change the view.

Action

Select Action from the Network Map menu bar to access the Action pull-down menu.

- **Acknowledge Alert**

  Choose Acknowledge Alert from the Action pull-down menu to change all the alert statuses of the selected device(s) to the acknowledged state. The icon(s) color changes, reflecting the acknowledgment. This command is inactive (gray) unless an icon(s) is selected containing unacknowledged device alerts.

- **Clear Alert**

  Choose Clear Alert from the Action pull-down menu to change all the alert statuses of the selected device(s) to No Alert. The icon changes to the No Alert color. This command is inactive (gray) unless an icon(s) is selected containing device alerts.

- **Move Selection**

  Choose Move Selection from the Action pull-down menu to change the location of an icon on the Geographic Map window. This command is inactive (gray) unless a single device, hunt group, or site icon is selected within the Geographic Map window. Follow the procedure below.

▶ Procedure

1. Select the icon from the Geographic Map window.
2. Choose Move Selection from the Action pull-down menu.
3. Move the selected icon (now the cursor) to the new location on the view and click the left mouse button. The icon is placed in the new location.

- **Zoom In**

  Choose Zoom In from the Action pull-down menu to magnify a portion of the view in the Geographic Map window. This command is inactive (gray) unless a Geographic Map window area is selected, a cluster icon is selected, or the current view is not magnified to its maximum extent. Each time the view changes by zooming in, the current view is saved in a last in, first out buffer. Up to ten views can be stored in the buffer. Follow the procedure below.

▶ Procedure

1. On the Geographic Map window, select a cluster icon, a group of icons, or an area of the map. To select a group of icons, use Ctrl + click on the second and subsequent icons. An area is selected by dragging the cursor.
2. Choose Zoom In from the Action pull-down menu.

   The Geographic Map window changes to reflect the new magnification. If the requested magnification exceeds the maximum allowed, the view magnifies to the maximum extent possible.

- **Zoom Out**

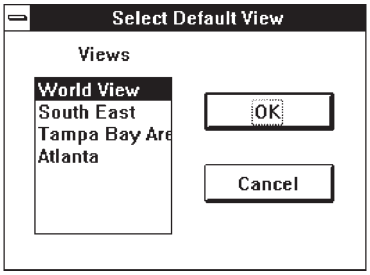
  Choose Zoom Out from the Action pull-down menu to return to the previously displayed view. Each time you choose the Zoom Out command, the displayed view comes from the last in, first out buffer. See the Zoom In command. This command is inactive (gray) if the zoom in buffer is empty or the Geographic Map window is not the active window.

- **Select Default View**

  Choose Select Default View from the Action pull-down menu to assign the default view. The default view displays when the Geographic Map window opens and is listed in the View menu with an asterisk next to it. Follow the procedure below.

▶ Procedure

1. Choose Select Default View from the Action pull-down menu. A Selection Default View dialog box appears.



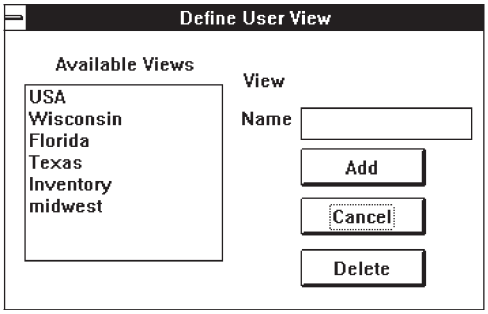
2. Select one of the user-defined views listed.
3. Choose OK.

- **Define User View**

  Choose Define User View from the Action pull-down menu to assign the current view as one of the six user-defined views, or to delete an existing user view. Follow the procedure below.

▶ Procedure

1. Ensure that the current view is the one desired to be defined as one of the user views. See the *Zoom In* and *Zoom Out* sections of this chapter for additional information on changing the view.
2. Choose Define User View from the Action pull-down menu. A Define User View dialog box appears.



3. Select one of the Available Views listed.
4. Type the name in the **Name** field if different from the one selected.
5. Choose Add.

Once a view is assigned as a user-defined view, it can be redefined or removed. Use the **View** command to display a new view.

To delete an existing user view:

▶ Procedure

1. Choose Define User View from the Action pull-down menu. A Define User View dialog box appears.
2. Select the view you wish to delete.
3. Choose Delete.

Commands

Select Commands from the Network Map menu bar to access the Commands pull-down menu and the following commands.

- **Device Management (DevMgt)**

  Select DevMgt from the Commands pull-down menu to access the Device Management window. This menu is inactive (gray) unless a device or site containing a device is selected. All the devices currently selected appear in the device selection list. See Chapter 7, *Device Management*, for additional information. Choosing DevMgt does not close the Displays window(s).

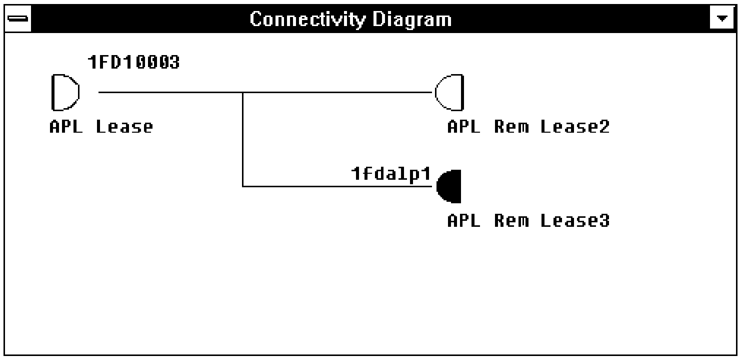
- **Information (Info)**

  Select Info from the Commands pull-down menu to open an information dialog box. The dialog box that appears depends on the current selection: site, cabinet, carrier, device, or facility line. The Info menu is inactive (gray) unless a single network element (site, cabinet, carrier, device, hunt group, or facility line) is selected. See *Information Display* in Appendix A, *NMS Windows Conventions*, for additional information. Close the Info window to continue with Displays.

  If you press and hold the right mouse button over a facility line, a window appears containing the facility and circuit names.

- **Connectivity**

  Select Connectivity from the Commands pull-down menu to display the Connectivity Diagram. The Connectivity Diagram is a topographical representation of a selected device configured as leased connections. You must select either a device configured as leased or the facility line to display the Connectivity Diagram. If the facility line is selected, a Connectivity Diagram for both endpoints of the line appears. The Connectivity Diagram can also be displayed from the Carrier Monitor and the Device Management windows.



Unplaced

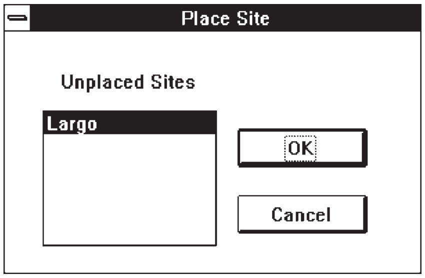
Select Unplaced from the Network Map menu bar to access the Unplaced pull-down menu. The **Unplaced** commands allow you to select unplaced sites, hunt groups, or devices and locate them on the Geographic Map. The Unplaced menu is inactive (gray) if all the sites, hunt groups, and devices have locations in the network configuration.

Choose Place Site from the Unplaced pull-down menu to place a site or hunt group on the current view. The **Place Site** command is inactive (gray) if all sites are placed. Before placing a site, be sure the view currently displayed shows the desired resolution and location. Use the **View** command to change the view and the **Action** command to zoom in or out. The **Update Coordinates** command allows you to enter or change the geographic coordinates, including country, area/exchange city code, latitude, and longitude for a device.

To place a site:

▶ Procedure

1. Choose Place Site from the Unplaced pull-down menu. A Place Site dialog box appears with a list box containing the unplaced sites and hunt groups.



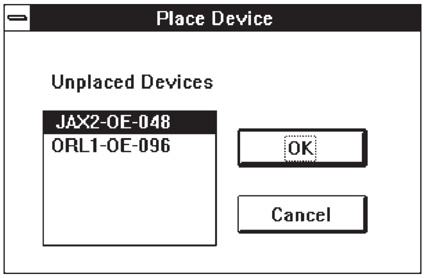
2. Select a site or hunt group from the list box.
3. Choose OK.
4. The dialog box closes and the mouse pointer changes to a site icon. Move the icon to the desired view location.
5. Click the left mouse button. The site is now placed and the site’s name is removed from the **Unplaced Sites** list box.

Choose Place Device from the Unplaced pull-down menu to place a device on the currently displayed view. The Place Device command is inactive (gray) if all devices are placed. Before placing a device, be sure the view currently displayed shows the desired resolution and location. Use the **View** command to change the view currently displayed and the **Action** command to zoom in or out.

To place a device:

▶ Procedure

1. Choose Place Device from the Unplaced pull-down menu. A Place Device dialog box appears with a list box containing the unplaced devices.



2. Select a device from the list box.
3. Choose OK.
4. The dialog box closes and the mouse pointer changes to a device icon. Move the icon to the desired view location.
5. Click the left mouse button. The device is now placed and the device's name is removed from the **Unplaced Devices** list box.

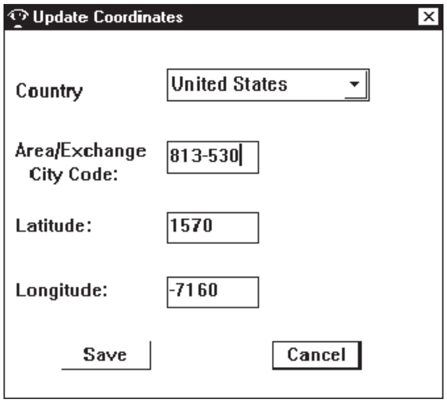
Devices and sites may also be placed using the network configuration portion of NMS. See *Configuring a Network Site* and *Configuring a Device* in Chapter 4, *Configuration*.

The Update Coordinates menu item is only enabled after performing Move Selection, Place Device, or Place Site function.

To create or update device coordinates:

▶ Procedure

1. Choose Update Coordinates from the Unplaced pull-down menu. An Update Coordinates dialog box appears.



Country: United States

Area/Exchange City Code: 813-530

Latitude: 1570

Longitude: -7160

2. Enter the information:

   Country: Select the country from the drop down list box.

   Area/Exchange City Code: Enter six digits for North America (United States and Canada) and three digits elsewhere.

   Latitude: Computed by the move or place function as the number of degrees from the equator. A positive number is north of the equator and a negative number is south of the equator.

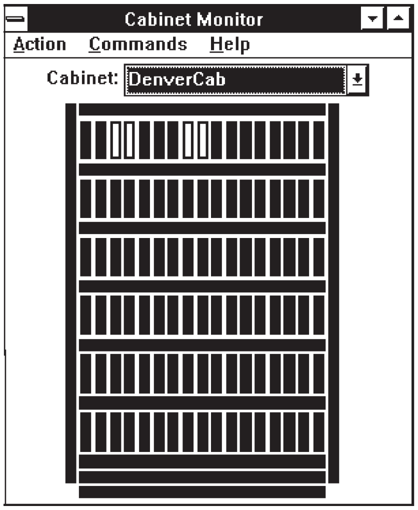
   Longitude: Computed by the move or place function as the number of degrees from the prime meridian. A positive number is east while a negative number is west of the prime meridian.

3. Choose Save.

   The Save function will either create a new entry in the database or update an existing entry.

Cabinet Monitor

The **Cabinet Monitor** commands allow you to view the status of all carrier-mounted devices in a specific cabinet. Select Cabinet Monitor from the Displays pull-down menu. The Cabinet Monitor window appears using the alert colors.



Cabinet: DenverCab

The following color schemes apply to this window. See *System Colors* on page 5-4 for more information on colors.

- The cabinet frame is the same color as the highest alert color for all the carriers.
- Each carrier appears using the highest alert colors for the devices installed.
- Each device appears using the highest alert color associated with the device.
- Empty slots use the empty carrier slot color and unsupported devices use the unsupported device color.
- If the device is either suspended or in inventory, the appropriate color appears.

The menu commands **Action** and **Commands** are inactive (gray) until you select a carrier(s) or the whole cabinet.

The **Cabinet** field displays the name of the current cabinet.

To change the current name:

▶ Procedure

1. Choose the arrow to the right of the **Cabinet** field. The drop-down list box containing the names of all the cabinets in the network appears.
2. Select a cabinet name. The selected name appears in the **Cabinet** field.

Selecting the Cabinet or Carrier

After ensuring that the displayed cabinet name is correct, select (make active) either the whole cabinet or one or more carriers.

To select the displayed cabinet, click on the cabinet frame. The three horizontal bars (one on top and two on the bottom) and the two vertical bars (one on each side) that make the frame are shown with a thick dark outline.

To select individual carriers, click anywhere within the carrier. The horizontal bar, located in the lower portion of the carrier, appears with a thick dark outline. To select multiple carriers, use Ctrl + click on the second and subsequent carriers.

To deselect any selected item, use the Ctrl + click combination.

You can also use the keyboard to select and deselect items. Use the Tab key to cycle the focus from one carrier to the next and then to the cabinet. Keyboard focus is indicated by a dashed line. Use the spacebar to select the item in focus. If already selected, use Ctrl + spacebar to deselect the item. If not already selected, use Ctrl + spacebar to select multiple carriers.

Action

Select Action from the Cabinet Monitor menu bar to access the Action pull-down menu. Use the **Action** commands to acknowledge and clear alerts from devices in the Cabinet monitor. The Action menu is inactive (gray) unless the selected cabinet, or carrier has at least one device alert.

- **Acknowledge Alert**

  Choose Acknowledge Alert from the Action pull-down menu to change all the alert statuses of all the devices within the selected cabinet or carrier(s) to the acknowledged state. The carrier(s) color changes, reflecting the acknowledgment. This command is inactive (gray) unless a cabinet or carrier(s) is selected containing an unacknowledged device alert.

- **Clear Alert**

  Choose Clear Alert from the Action pull-down menu to change all the alert statuses of all the devices within the selected carrier(s) to No Alert. The color of the carrier(s) changes to the No Alert color. This command is inactive (gray) unless the selected cabinet or carrier(s) contains a device alert.

Commands

Select Commands from the Cabinet Monitor menu bar to access a command to open an information dialog box.

- **Information (Info)**

  Select Info from the Commands menu to open an information dialog box. This menu is inactive (gray) unless either a single carrier or the whole cabinet is selected. Depending on the current selection either the Cabinet Information dialog box or the Carrier Information dialog box appears. See *Information Display* in Appendix A, *NMS Windows Conventions*, for additional information.

Distributive Cabinets

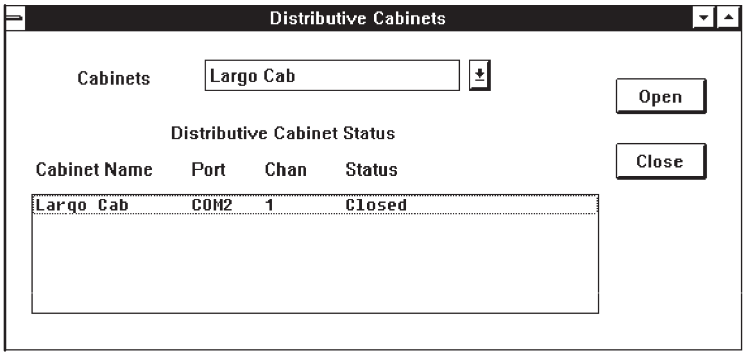
Use the Distributive Cabinets function to display the current status of all cabinets configured as distributive cabinets within the 6700 Series NMS. You can also use this command to open and close a distributive cabinet.

NOTE:

Close an open distributive cabinet before opening another one.

▶ Procedure

1. Click on the Distributive Cabinet icon on the Main Menu. The Distributive Cabinets Window appears.



Cabinets: Largo Cab

Distributive Cabinet Status

Cabinet Name	Port	Chan	Status
Largo Cab	COM2	1	Closed

2. Choose the arrow to the right of the **Cabinets** field. The drop-down list box containing the names of all the distributive cabinets in the network appears.
3. Select a cabinet name. The selected name appears in the **Cabinets** field. Table 5-3 lists the information that appears in the Distributive Cabinet Status section.

Table 5-3. Distributive Cabinet Status Fields

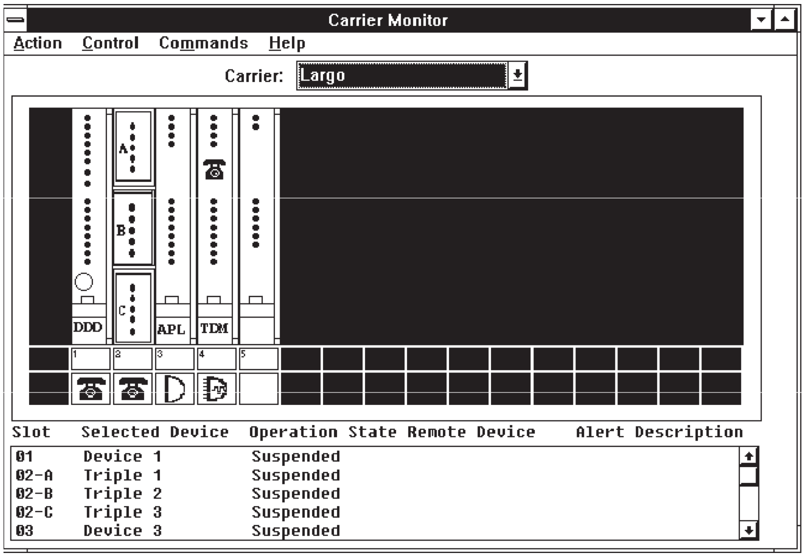
Field	Description
Cabinet Name	The name of the selected cabinet.
Port	The port that the selected cabinet will be using.
Chan	The control channel assigned to the devices within the cabinet.
Status	The current status of the selected cabinet: Closed, Dialing, Manually Opened, Automatically Opened.

4. Choose Open to open the selected cabinet. After the cabinet is successfully opened, the Automatic Open process (cabinet is opened by the system) is paused. Choose Close to close the selected cabinet. After the cabinet is successfully closed, the Automatic Open process resumes.

Carrier Monitor

The **Carrier Monitor** commands allow you to view the status of all carrier-mounted devices, acknowledge and clear alerts, display information about a specific carrier or device, place a device into (or remove a device from) a busy state, and change a device's connection to a service line.

Select Carrier Monitor from the Displays pull-down menu, or select the Carrier Monitor icon in the toolbar; the Carrier Monitor window displays information about a device's operational state, device configuration, and device status.



Carrier: Largo

Slot	Selected Device	Operation State	Remote Device	Alert Description
01	Device 1	Suspended		
02-A	Triple 1	Suspended		
02-B	Triple 2	Suspended		
02-C	Triple 3	Suspended		
03	Device 3	Suspended		

The Carrier Monitor window is a split window. The upper portion displays the menus **Action**, **Control**, and **Commands**, and a pictorial diagram of the carrier. The lower portion displays a listing of information on all the devices.

Each device uses the appropriate alert color. If the device is either suspended or in inventory, the appropriate color will be used. See *System Colors* on page 5-4. Empty slots use the empty carrier slot color and unsupported devices use the unsupported device color.

Changing the Carrier Name

The **Carrier** field displays the name of the current carrier.

▶ Procedure

1. Choose the arrow to the right of the **Carrier** field. The drop-down list box containing the names of all the carriers in the network appears.
2. Select a carrier name. The selected name appears in the **Carrier** field.

Selecting the Carrier or Device

After ensuring that the displayed carrier name is correct, select (make active) either the whole carrier or one or more devices. For the Model 3821*Plus* modem, you can also select the position.

To select all devices in the displayed carrier, click anywhere within the carrier, but not directly on any devices. The outside borders of the frame and each device appears with a thick dark outline.

To select individual devices, click anywhere within the device. The device appears with a thick dark outline. To select multiple devices, use Ctrl + click on the second and subsequent devices.

To deselect any selected item, use the Ctrl + click combination.

You can also use the keyboard to select and deselect items. Use the Tab key to cycle the focus from one device to the next. Keyboard focus is indicated by a dashed line. Use the spacebar to select the item in focus. If already selected, use Ctrl + spacebar to deselect the item. If not already selected, use Ctrl + spacebar to select multiple devices.

Just below each device is a device options box. This box identifies devices configured with additional options using a 3-character mnemonic (see Table 5-4).

Table 5-4. Device Option Mnemonics

Mnemonic	Description
APL	Analog Device
DBM	Dial Backup Modem
DDD	Direct Dialing Device
DSU	Digital Service Unit
DSU DF	Digital Service Unit Dual Flow
MCM	Multichannel Multipoint
MSD	Modem Sharing Device
TDM	Time Division Multiplexer

Just below the Device Options box is a Device Activity box. Each box contains the slot number and a code representing the current operational state of the device. The device activity codes are listed in Table 5-5.

Table 5-5. Device Activity Codes

Mnemonic	Description
(blank)	Idle
R	Ring Indicate
A	Answering
K	Talk Mode
H	Off-Hook
D	Dialing
r	Remote ringing
O	Online
B	Dial Backup
S	Dial Standby

Under each Device Activity box is a Device Configuration box. Displayed in each box is an icon indicating the configuration of the device. Refer to *Icons* on page 5-2 for additional information.

At the bottom of the Carrier Monitor window is a list of the carrier devices (see page 5-16). Each line represents a device with five columns of information. The first column is the slot number, and for Model 3821*Plus* modems, the carrier position location and the selected modem. The second column is the device name. The third column is the Operational State (as indicated in the Device Activity box), the fourth column is Remote Device, and the last column is the device's highest alert status.

Action

Select Action from the Carrier Monitor menu bar to access the Action pull-down menu. Use the **Action** commands to acknowledge and clear alerts from devices in the Carrier monitor. The Action menu is inactive (gray) unless the selected carrier, or device(s) has at least one device alert.

- **Acknowledge Alert**

  Choose Acknowledge Alert from the Action pull-down menu to change all the alert statuses of the selected device(s) to the acknowledged state. The device(s) color changes, reflecting the acknowledgment. This command is inactive (gray) unless a device(s) is selected containing an unacknowledged alert.

- **Clear Alert**

  Choose Clear Alert from the Action pull-down menu to change all the alert statuses of the selected device(s) to No Alert. The color of the device(s) change to the No Alert color. This command is inactive (gray) unless the selected device(s) contains an alert.

Control

Select Control from the Carrier Monitor menu bar to access the Control window. The Control pull-down menu appears listing the commands **Make Busy, Remove Busy, Connect to Service Line**, and **Disconnect from Service Line**. The Commands menu items are inactive (gray) unless one or more devices are selected.

- **Make Busy**

  Choose Make Busy from the Control pull-down menu to change the device configuration to Busied Out. The selected device(s) configuration icon changes to Busied Out. If any selected device is Busied Out, this command is inactive (gray).

- **Remove Busy**

  Choose Remove Busy from the Control pull-down menu to change the device's Busied Out configuration. The selected device(s) configuration icon returns to its normal state. If any selected device is not Busied Out, this command is inactive (gray).

- **Connect to Service Line**

  Choose Connect to Service Line from the Control pull-down menu to connect the selected device to the service line. This command is inactive (gray) unless the single device selected is not connected to the service line. The following are several suggestions for when to use the service line:

  — When the normal lines fail.

  — When the device does not have a dedicated dial line.

  — To permit dialing into a specific device connected to a rotary (sequencer). Normally, if a device is connected to a rotary, direct dial-in access is not guaranteed since the rotary gives the call to the next available device.

- **Disconnect from Service Line**

  Choose Disconnect from Service Line from the Control pull-down menu to disconnect the selected device from the service line. This command is inactive (gray) unless the single device selected is connected to the service line.

Commands

Select Commands from the Carrier Monitor menu bar to access commands to manage devices, access an information dialog box, list operation status codes used in the Device Activity boxes, and display a connectivity diagram.

- **Device Management (DevMgt)**

  Select DevMgt from the Commands menu to access the Device Management window. This menu is inactive (gray) unless a device(s) is selected. All selected device(s) appear in the device selection list. See Chapter 7, *Device Management*, for additional information.

- **Information (Info)**

  Select Info from the Commands menu to open an information dialog box. This menu is inactive (gray) unless one device or the entire carrier is selected. The dialog box that appears depends upon the current selection. The Device Information box appears for a single selected device. The Carrier Information dialog box appears when all devices in the carrier are selected.

- **Legend**

  Select Legend from the Commands menu to display the Legend window. The Legend window lists the operation status codes used in the Device Activity boxes found in the graphic display of the carrier.

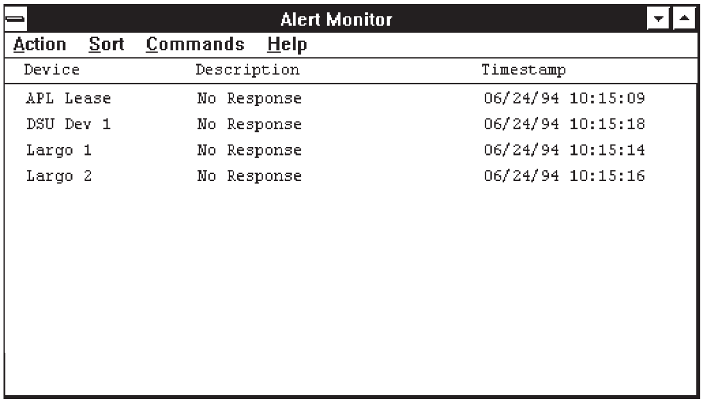
- **Connectivity**

  Select Connectivity from the Commands menu to display the Connectivity Diagram. The Connectivity Diagram is a topographical representation of a selected device configured as leased connections (see page 5-9). You must select a device configured as leased to display the Connectivity Diagram. The Connectivity Diagram can also be displayed from the Network Map and the Device Management windows.

Alert Monitor

Alert Monitor commands allow you to view all the current alerts that network devices report to NMS and any outstanding beeper alerts. The displayed alerts can be sorted either by device or by the time of occurrence. From the Alert Monitor window, you can clear or acknowledge the displayed alert and beeper alerts.

Select Alert Monitor from the Displays pull-down menu, or select the Alert Monitor icon in the toolbar. The Alert Monitor window appears with the menus **Action**, **Sort**, and **Commands**, and a listing of the current alerts reported by the network.



```
Device              Description                       Timestamp
APL Lease           No Response                       06/24/94 10:15:09
DSU Dev 1           No Response                       06/24/94 10:15:18
Largo 1             No Response                       06/24/94 10:15:14
Largo 2             No Response                       06/24/94 10:15:16
```

For each line, colors represent the status of listed devices. See *System Colors* on page 5-4 for additional information.

Each listing uses three fields of information containing the device name, alert description, and the time of occurrence.

Action

Select Action from the Alert Monitor menu bar to access commands to acknowledge and clear alerts. The Action menu items are inactive (gray) unless an alert is selected.

- **Acknowledge Alert**

  Choose Acknowledge Alert from the Action pull-down menu to change all the alert statuses of the selected alert(s) to the acknowledged state. The alert(s) color changes, reflecting the acknowledgment. This command is inactive (gray) unless an unacknowledged alert(s) is selected.

- **Clear Alert**

  Choose Clear Alert from the Action pull-down menu to change all the alert statuses of the selected alert(s) to No Alert. The alert entries are deleted from the list.

Sort

Select Sort from the Alert Monitor menu bar to access the Sort pull-down menu. Use the Sort pull-down menu commands to sort the listing by either time or device name.

To view alerts as they occur (chronologically), display alerts sorted by Timestamp and view the bottom of the list.

- **Timestamp**

  Choose Timestamp from the Sort pull-down menu to have the alerts listed according to the time they occurred.

  Each new alert appears at the bottom of the list. The maximum number of displayed alerts is 1000, after which the oldest alert disappears as new ones are added. If the bottom of the list appears, the window will scroll as each new alert is added to display the most recent alerts. If the scroll bar is used to display older alerts, the window will not appear to scroll as new alerts are added, but the scroll box position will change relative to the scroll bar. Scroll to the bottom of the list to continue the automatic scrolling.

- **Device Name**

  Choose Device Name from the Sort pull-down menu to have the alerts listed according to the device name. The device names are alphanumerically sorted with the alert Timestamp. Use the scroll bar to view alerts not currently displayed.

Commands

Select Commands from the Alert Monitor menu bar to access the Device Management window or a device information dialog box.

- **Device Management (DevMgt)**

  Select DevMgt from the commands menu to access the Device Management window. This menu is inactive (gray) unless an alert(s) is selected. All selected devices appear in the device selection list. See Chapter 7, *Device Management*, for additional information.

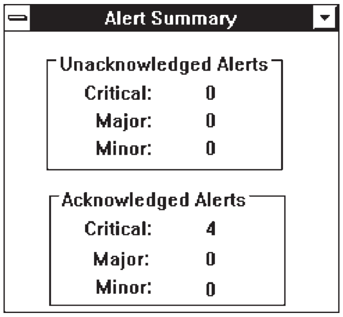
- **Information (Info)**

  Select Info from the Commands menu to open a device information dialog box. This menu is inactive (gray) unless a single alert is selected.

Alert Summary

The **Alert Summary** command allows you to view a summary of all alerts.

Select Alert Summary from the Displays pull-down menu. The Alert Summary window shows a summary listing of the number of unacknowledged and acknowledged alerts for each type of alert.



Alert Summary

Unacknowledged Alerts

Critical: 0
Major: 0
Minor: 0

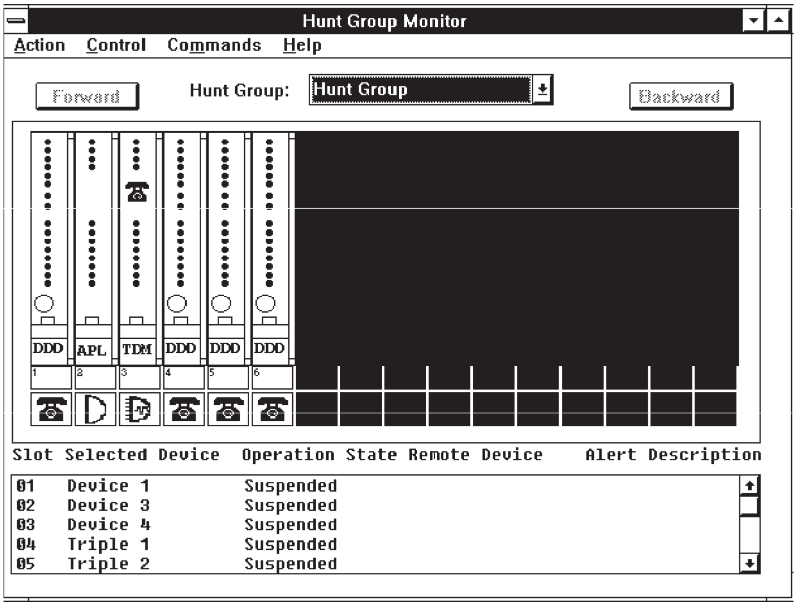
Acknowledged Alerts

Critical: 4
Major: 0
Minor: 0

Hunt Group Monitor

The **Hunt Group Monitor** commands allow you to view the status of devices assigned to a Hunt Group, acknowledge and clear alerts, display information about a specific hunt group or device, and place a device into or remove a device from a busy state.

Select Hunt Group Monitor from the Displays pull-down menu. The Hunt Group Monitor window displays information about a Hunt Group's operational state, device configuration, and device status.



```
Slot  Selected Device   Operation State  Remote Device    Alert Description
01    Device 1          Suspended
02    Device 3          Suspended
03    Device 4          Suspended
04    Triple 1          Suspended
05    Triple 2          Suspended
```

The Hunt Group Monitor window is a split window. The upper portion displays the menus **Action**, **Control**, and **Commands**, and a pictorial diagram of the Hunt Group. The lower portion displays a listing of information on all devices in the Hunt Group.

Each device uses the appropriate alert color. If the device is either suspended or in inventory, the appropriate color will be used. See *System Colors* on page 5-4. Empty slots use the empty carrier slot color and unsupported devices use the unsupported device color.

All devices assigned to a hunt group are sorted by device name. If the Hunt Group contains more devices than can be shown (16 card slots), the forward button is enabled. If there are previously defined devices in a hunt group, the backward button is enabled.

If all of the assigned devices are currently connected for the assigned busy connect duration, the Hunt Group selection line that surrounds the card slots appears using the alert color assigned to the busy group alert.

Changing the Hunt Group Name

The **Hunt Group** field displays the name of the current Hunt Group.

▶ Procedure

1. Choose the arrow to the right of the **Hunt Group** field. The drop-down list box containing the names of all the Hunt Groups in the network appears.
2. Select a Hunt Group name. The selected name appears in the **Hunt Group** field.

Selecting the Hunt Group or Device

After ensuring that the displayed Hunt Group name is correct, select (make active) either the whole Hunt Group or one or more devices.

To select all devices in the displayed Hunt Group, click anywhere within the Hunt Group, but not directly on any devices. The outside borders of the frame and each device appears with a thick dark outline. When you select all devices in a hunt group, all devices in that group, including those not visible, are subject to commands.

To select individual devices, click anywhere within the device. The device appears with a thick dark outline. To select multiple devices, use Ctrl + click on the second and subsequent devices.

To deselect any selected item, use the Ctrl + click combination.

You can also use the keyboard to select and deselect items. Use the Tab key to cycle the focus from one device to the next and then to the Hunt Group. Keyboard focus is indicated by a dashed line. Use the spacebar to select the item in focus. If already selected, use Ctrl + spacebar to deselect the item. If not already selected, use Ctrl + spacebar to select multiple devices.

Just below each device is a device options box. This box identifies devices configured with additional options using a 3-character mnemonic (see Table 5-6).

Table 5-6. Device Option Mnemonics

Mnemonic	Description
APL	Analog Device
DBM	Dial Backup Modem
DDD	Direct Dialing Device
DSU	Digital Service Unit
DSU DF	Digital Service Unit Dual Flow
MCM	Multichannel Multipoint
MSD	Modem Sharing Device
TDM	Time Division Multiplexer

Just below the Device Options box is a Device Activity box. Each box contains the slot number and a code representing the current operational state of the device. The device activity codes are listed in Table 5-7.

Table 5-7. Device Activity Codes

Mnemonic	Description
(blank)	Idle
R	Ring Indicate
A	Answering
K	Talk Mode
H	Off-Hook
D	Dialing
r	Remote ringing
O	Online
B	Dial Backup
S	Dial Standby

Under each Device Activity box is a Device Configuration box. Displayed in each box is an icon indicating the configuration of the device. Refer to *Icons* on page 5-2 for additional information.

At the bottom of the Hunt Group Monitor window is a list of the Hunt Group devices. Each line represents a device with five columns of information. The first column is the slot number. The second column is the device name. The third column is the Operational State (as indicated in the Device Activity box). The fourth column is the Remote Device and the last column is the device's highest alert status.

Action

Select Action from the Hunt Group Monitor menu bar to access the Action pull-down menu. Use the **Action** commands to acknowledge and clear alerts from devices in the Hunt Group monitor. The Action menu is inactive (gray) unless the selected Hunt Group, or device(s) has at least one device alert.

- **Acknowledge Alert**

  Choose Acknowledge Alert from the Action pull-down menu to change all the alert statuses of the selected device(s) to the acknowledged state. The device(s) color changes, reflecting the acknowledgment. This command is inactive (gray) unless a device(s) is selected containing an unacknowledged alert.

- **Clear Alert**

  Choose Clear Alert from the Action pull-down menu to change all the alert statuses of the selected device(s) to No Alert. The color of the device(s) change to the No Alert color. This command is inactive (gray) unless the selected device(s) contains an alert.

Control

Select Control from the Hunt Group Monitor menu bar to access the Control window. The Control pull-down menu appears listing the commands **Make Busy** and **Remove Busy**. This command is inactive (gray) unless one or more devices are selected.

- **Make Busy**

  Choose Make Busy from the Control pull-down menu to change the device configuration to Busied Out. The selected device(s) configuration icon changes to Busied Out. If any selected device is Busied Out, this command is inactive (gray).

- **Remove Busy**

  Choose Remove Busy from the Control pull-down menu to change the device's Busied Out configuration. The selected device(s) configuration icon returns to its normal state. If any selected device is not Busied Out, this command is inactive (gray).

Commands

Select Commands from the Hunt Group Monitor menu bar to access commands to manage devices, access an information dialog box, and list operation status codes used in the Device Activity boxes.

- **Device Management (DevMgt)**

  Select DevMgt from the Commands menu to access the Device Management window. This menu is inactive (gray) unless a device(s) is selected. All selected device(s) appear in the device selection list. See Chapter 7, *Device Management*, for additional information.

- **Information (Info)**

  Select Info from the Commands menu to open an information dialog box. This menu is inactive (gray) unless one device or the entire Hunt Group is selected. The dialog box that appears depends upon the current selection. The Device Information box appears for a single selected device. The Hunt Group Information dialog box appears when all devices in the Hunt Group are selected.

- **Legend**

  Select Legend from the Commands menu to display the Legend window. The Legend window lists the operation status codes used in the Device Activity boxes found in the graphic display of the Hunt Group.

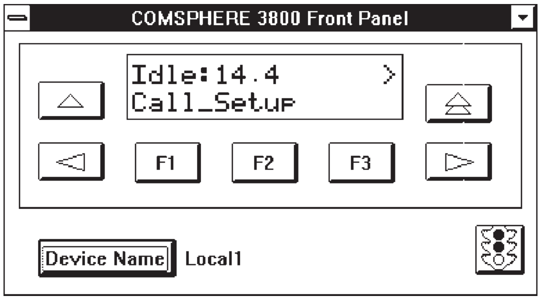
Event Monitor

The Event Monitor is detailed in the *COMSPHERE 6700 Series Network Management System Security Manager Feature Supplement*.

Front Panel

The **Front Panel** command allows you to have direct access to a device's front panel directly from NMS. This front panel looks and operates exactly like the selected device's front panel. Each time a button is pressed, a command is sent to and a response is received from the device. The window is updated periodically to show what the device is currently displaying.

Select Front Panel from the Displays pull-down menu, or select the Front Panel icon in the toolbar. The Front Panel window appears.



▶ Procedure

1. Select a device by choosing the Device Name button to select a single device.
2. Check the Stop/Go Light indicator on the lower right portion of the screen. The Go light (green) indicator is activated when NMS is communicating with the selected device. The Stop Light indicator (red) is activated for the following conditions:
   - — There is no device currently selected.
   - — Communication with the selected device has been lost or a response error has been received. A message box also appears with more information about the error. Either press ENTER or choose OK within the message box to display the last valid response from the device.
   - — You halted update polling by clicking on the Go Light indicator.
3. View the front panel status area just above the Device Name button. This area remains blank unless the **In Progress...** message displays indicating that NMS has issued a command to the selected device and is waiting for a response.
4. Use the four buttons and three function keys to control the front panel. See the appropriate device User's Guide for more information about using the front panel.

Keyboard and Mouse Shortcuts

The different Displays windows support keyboard accelerators. See *Using the Mouse and Keyboard* in Appendix A, *NMS Windows Conventions*, for additional information. Tables 5-8 through 5-11 list the keyboard accelerators for each of the Displays menu windows.

Table 5-8. Network Map Keyboard Accelerators

Keyboard Command	Description
Ctrl + a	Acknowledges an alert for the currently selected device(s).
Ctrl + c	Clears all the alerts for the currently selected items.
Ctrl + f	Opens an information dialog box for the selected icon. Not valid for the cluster icon.
Ctrl + g	Deselects the currently selected icon(s) in the Network Hierarchy window and shifts the keyboard focus to the Geographic Map window.
Ctrl + h	Deselects the currently selected icon(s) in the Geographic Map and shifts the keyboard focus to the Network Hierarchy window.
Ctrl + m	Opens the Device Management window with the selected device(s) in the selection list.
Ctrl + o	Causes the window to change to the previously stored view. The highest view permitted is the view displayed when the window initially opens.
Ctrl + z	Causes the window to magnify to the zoom area or selected icon. Each previous window is stored (maximum of ten) for each zoom in.

Table 5-9. Cabinet Monitor Keyboard Accelerators

Keyboard Command	Description
Ctrl + a	Acknowledges an alert for the currently selected device(s).
Ctrl + c	Clear all the alerts for the currently selected items.
Ctrl + f	Opens an information dialog box for the cabinet or single selected carrier.
Ctrl + j	Jumps to the Cabinet selection field.

Table 5-10. Carrier Monitor Keyboard Accelerators

Keyboard Command	Description
Ctrl + a	Acknowledges an alert for the currently selected device(s).
Ctrl + c	Clear all the alerts for the currently selected items.
Ctrl + f	Opens an information dialog box for the carrier or single device selected.
Ctrl + j	Jumps to the Carrier selection field.
Ctrl + m	Opens the Device Management window with the selected device(s) in the selection list.

Table 5-11. Alert Monitor Keyboard Accelerators

Keyboard Command	Description
Ctrl + a	Acknowledges an alert for the currently selected device(s).
Ctrl + c	Clear all the alerts for the currently selected items.
Ctrl + f	Opens the Device Information dialog box for the single device selected.
Ctrl + m	Opens the Device Management window with the selected device(s) in the selection list.

Available in the Displays windows is the advanced feature of double clicking on different items or icons to perform a specific action. The actual action depends on the item or icon selected and the current window. Table 5-12 lists the item or icon selected, the affected window and the action resulting from double clicking. Any restrictions that apply to the equivalent menu command also apply to the double-clicking result.

Table 5-12. Double-Clicking Shortcuts

Item or Icon	Name	Result
Cluster icon	Network Map	Zooms in.
Site icon	Network Map	Open the Device Management window.
Cabinet icon	Network Map	Opens the Cabinet Monitor window for the selected cabinet.
Carrier icon	Network Map	Opens the Carrier Monitor window for the selected carrier.
Device icon	Network Map	Opens the Device Management window for the selected device.
Carrier	Cabinet Monitor	Opens the Carrier Monitor window for the selected carrier.
Device	Carrier Monitor	Opens the Device Management window for the selected device.
Facility Line	Network Map	Opens the Connectivity Diagram.

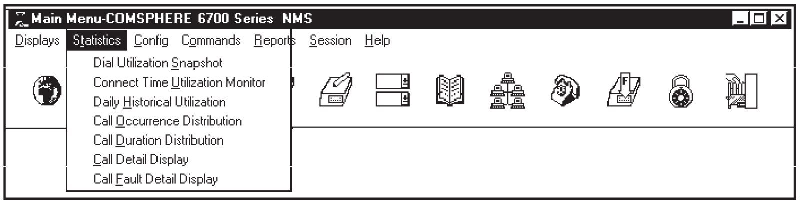
Statistics

6

Statistics Menu Overview

This chapter explains how to use Statistics to monitor the use of network resources. Six windows are available that provide different views of locally connected device utilization.

Access the Statistics menu from the Main Menu.


Main Menu-COMSPHERE 6700 Series NMS
Displays
Statistics
Config
Commands
Reports
Session
Help
Dial Utilization Snapshot
Connect Time Utilization Monitor
Daily Historical Utilization
Call Occurrence Distribution
Call Duration Distribution
Call Detail Display
Call Fault Detail Display

The Statistics menu selections are explained in this chapter:

- *Dial Utilization Snapshot*
- *Connect Time Utilization Monitor*
- *Daily Historical Utilization*
- *Call Occurrence Distribution*
- *Call Duration Distribution*
- *Call Detail Display*
- *Call Fault Detail Display*

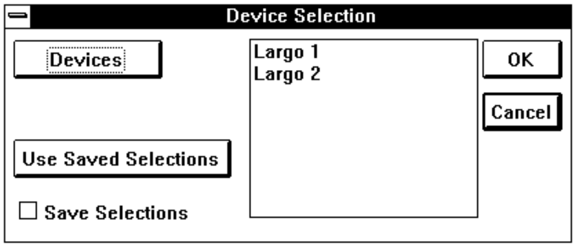
Selecting Devices

All Statistics windows have one common requirement:

- One or more devices **must** be selected prior to collecting any statistical data.

▶ Procedure

1. Choose Selection from the current Statistics window menu bar. The Selection pull-down menu appears.
2. Choose Device Selection from the Selection pull-down menu to display the Device Selection dialog box.



3. If all the devices listed are correct, go to Step 7.
4. If all the desired device(s) are not listed, choose Devices to access the Selection Browser and create a new list of devices. See *Device Selection* in Appendix A, *NMS Windows Conventions*, for additional information on using the Selection Browser.

   – or –

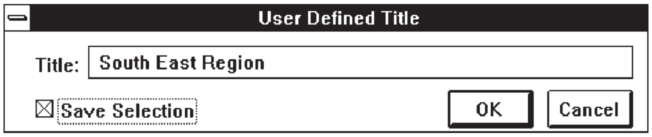
   If a list of devices has been saved, the Use Saved Selections button is enabled. Choose Use Saved Selections to recall your previously saved list.
5. To remove any device(s) from the list, choose Devices to access the device selection and remove devices from the list.
6. To save the current list of devices, select Save Selections before choosing OK. The saved list can only be recalled by the same user from within the same window.
7. Choose OK. All the devices in the device selection list are used by the current window.

User Defined Titles

You can create individual titles for each Statistics chart or data display. The title appears above the chart or data display when it is displayed or printed.

▶ Procedure

1. Select Selection from the menu bar of the current Statistics window.
2. Choose User Defined Title from the Selection pull-down menu to display the User Defined Title dialog box.



Title: South East Region

☒ Save Selection

3. Enter the desired name in the **Title** field (maximum 40 characters).
4. Select the **Save Selection** check box to make the current title the default title. The new title displays each time the chart or data displays. Each user can save a unique title for each window. If the **Save Selection** check box is not selected, the title is used until the window is closed and then the default title is restored.
5. Choose OK.

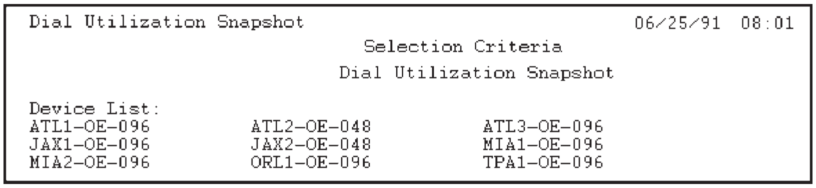
Printing Statistics

You can print the information section of any Statistics window. The print function is similar to the screen print function except that the title and menu bars are not printed and a header page is provided.

To print the displayed chart or data, select Print from the current Statistics window menu bar.

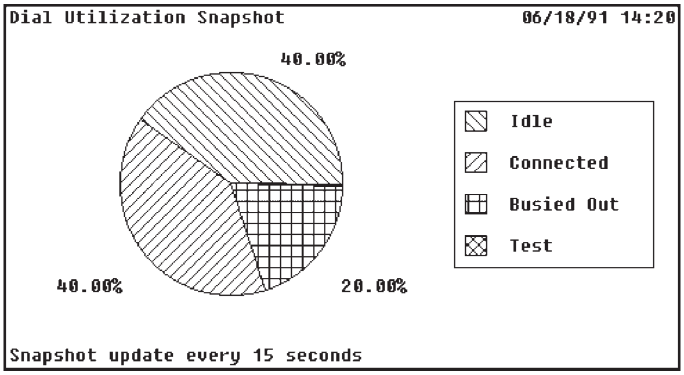
Each printout is composed of two sections: a Selection Criteria page (header page) followed by the information displayed in the current window.

The Selection Criteria page contains a listing of the selected devices. Any additional information supplied in the Selection Criteria page is discussed in the **Print** section of each Statistics command.



```
Dial Utilization Snapshot                                06/25/91  08:01
                             Selection Criteria
                          Dial Utilization Snapshot

Device List:
ATL1-OE-096          ATL2-OE-048          ATL3-OE-096
JAX1-OE-096          JAX2-OE-048          MIA1-OE-096
MIA2-OE-096          ORL1-OE-096          TPA1-OE-096
```

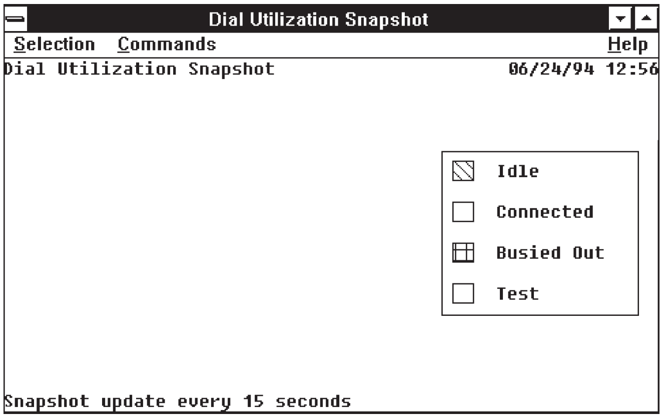
The second section is the currently displayed chart or data display. See *Setting Up the System Printer* in Chapter 4, *Configuration*, for additional information on printer selection.



Dial Utilization Snapshot

The **Dial Utilization Snapshot** command allows you to monitor and display how selected devices are being used (Idle, Connected, Busied Out, or in Test) at a single point in time (snapshot). Use this command to display the percentage of devices in each of the four modes. The percentages are displayed in pie chart format, upgraded at a user-defined rate (snapshot frequency).

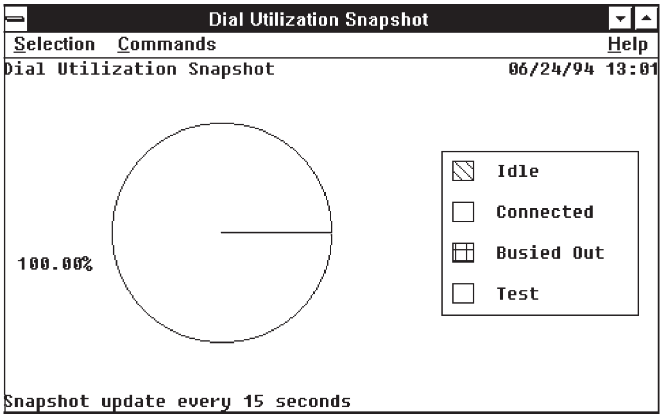
Choose Dial Utilization Snapshot from the Statistics pull-down menu to display the Dial Utilization Snapshot window. Displayed in the menu bar are **Selection** and **Commands**.



Dial Utilization Snapshot 06/24/94 12:56

Snapshot update every 15 seconds

Once the devices are selected and the data collection process begins, the pie chart appears. Above the pie chart is the chart title, date and time. Displayed below the chart is the snapshot frequency. To the right of the chart is a legend indicating the colors and patterns for each mode. See *Defining System Colors* in Chapter 4, *Configuration*, for additional information on system colors.



Dial Utilization Snapshot 06/24/94 13:01

Snapshot update every 15 seconds

Selection

Use Selection to designate the devices to be included in the chart, change the pie chart title, or change the snapshot frequency. Select Selection from the Dial Utilization Snapshot menu bar to display the Selection pull-down menu listing the commands **Device Selection**, **User Defined Title**, and **Snapshot Frequency.**

- **Device Selection**

  Use Device Selection to select the devices to be included in the Dial Utilization Snapshot pie chart. See *Selecting Devices* on page 6-2 for additional information on selecting devices. Remember that all devices in the device selection list are used for the Dial Utilization Snapshot chart.

- **User Defined Title**

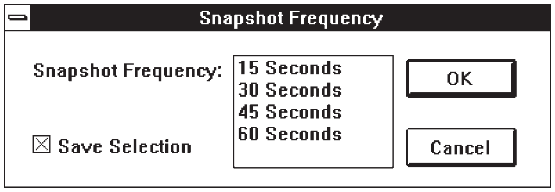
  Use User Defined Title to change the title of the Dial Utilization Snapshot chart. See *User Defined Titles* on page 6-3 for additional information on changing the title.

- **Snapshot Frequency**

  Use Snapshot Frequency to change the snapshot frequency (time interval between samples). The current snapshot frequency value appears in the lower left section of the window. Follow the procedure below.

▶ Procedure

1. Choose Snapshot Frequency from the Selection pull-down menu. The Snapshot Frequency dialog box appears.



2. Select the time interval from the times in the list box.
3. Select the **Save Selection** check box to make the current snapshot frequency the default. The new interval is used each time the Dial Utilization Snapshot pie chart is displayed. Each user can save a unique snapshot frequency for the Dial Utilization Snapshot window. If the **Save Selection** check box is not selected, the snapshot frequency is used until the Dial Utilization Snapshot window is closed and then the default snapshot frequency is restored.
4. Choose OK.

Commands

Use the Commands pull-down menu to access commands to collect, pause, and print dial utilization snapshots.

- **Collect**

  Use Collect on the Commands pull-down menu to start or continue the chart updating process. Collect is inactive (gray) unless one or more devices are selected. When you choose Collect, the following occurs:

  — The chart is updated.

  — Print and Pause become active.

  — Collect becomes inactive.

  — The information displayed in the window is updated at an interval equal to the snapshot frequency.

- **Pause**

  Use Pause on the Commands pull-down menu to stop the chart updating process. When you choose Pause, the following occurs:

  — The chart update process is suspended.

  — Collect becomes active.

  — Pause becomes inactive (gray).

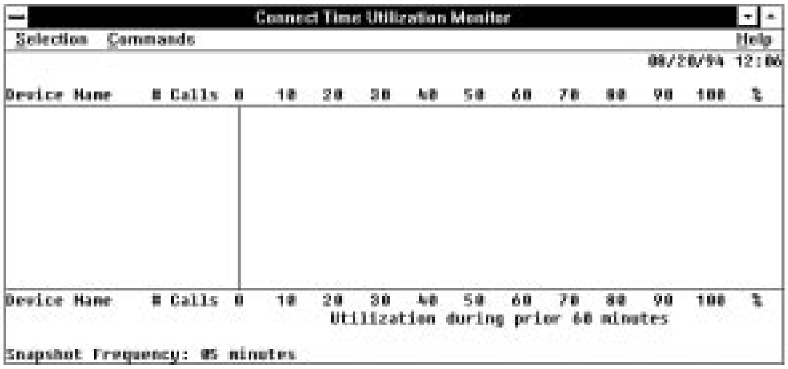
- **Print**

  Use Print on the Commands pull-down menu to print the Dial Utilization Snapshot chart and associated data. This command is inactive (gray) unless a chart is displayed. See *Printing Statistics* on page 6-3 for additional information.

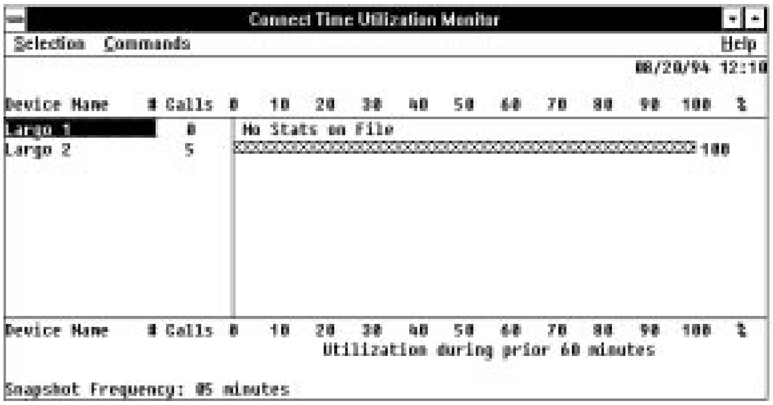
Connect Time Utilization Monitor

The **Connect Time Utilization Monitor** command allows you to monitor and display the percentage of time one or more devices were connected to other devices across a dial line during the previous hour. These percentages are displayed in horizontal bar chart format. The bar chart information is upgraded at a user-defined rate (snapshot frequency).

Choose Connect Time Utilization Monitor from the Statistics pulldown menu to display the Connect Time Utilization Monitor window. Displayed in the menu bar are **Selection** and **Commands**.



Once a device is selected and the data collection process begins, the horizontal bar chart and associated data are displayed. Each horizontal line shows the device name, the number of calls in the previous hour, a bar chart indicating the percentage of time the device was connected over the previous hour, and the actual percentage value of the bar chart. Above the chart is the chart title, date and time. Displayed below the chart is the snapshot frequency.



```
                                                                  08/20/94 12:10

Device Name     # Calls 0    10   20   30   40   50   60   70   80   90   100   %
Largo 1             0   No Stats on File
Largo 2             5   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 100

Device Name     # Calls 0    10   20   30   40   50   60   70   80   90   100   %
                                  Utilization during prior 60 minutes

Snapshot Frequency: 05 minutes
```

Selection

Use Selection to designate the devices to be included in the chart, change the chart title, or change the snapshot frequency. Select Selection from the Connect Time Utilization Monitor menu bar to display the Selection pull-down menu listing the commands **Device Selection**, **User Defined Title**, and **Snapshot Frequency**.

- **Device Selection**

  Use Device Selection to select the device(s) to be included in the Connect Time Utilization Monitor chart. See *Selecting Devices* on page 6-2 for additional information. All devices in the device selection list are used for the Connect Time Utilization Monitor chart.

- **User Defined Title**

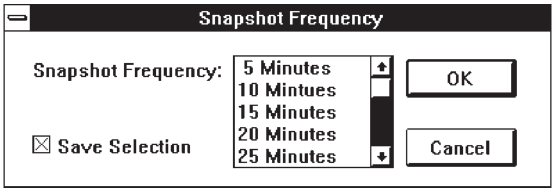
  Use User Defined Title to change the title of the Connect Time Utilization Monitor chart. See *User Defined Titles* on page 6-3 for additional information on changing the title.

- **Snapshot Frequency**

  Use Snapshot Frequency to change the snapshot frequency (time interval between samples). The current snapshot frequency value is displayed in the lower left section of the window. Follow the procedure below.

▶ Procedure

1. Choose Snapshot Frequency from the Selection pull-down menu. The Snapshot Frequency dialog box appears.



Snapshot Frequency: 5 Minutes
10 Mintues
15 Minutes
20 Minutes
25 Minutes

☒ Save Selection

2. Select the time interval from the times displayed in the list box.
3. Select the **Save Selection** check box to make the current snapshot frequency the default. The new interval is used each time the Connect Time Utilization Monitor bar chart displays. A unique snapshot frequency can be saved by each user for the Connect Time Utilization Monitor window. If the **Save Selection** check box is not selected, the snapshot frequency is used until the Connect Time Utilization Monitor window is closed and then the default snapshot frequency is restored.
4. Choose OK.

Commands

Use the Commands pull-down menu on the Connect Time Utilization Monitor menu bar to access commands to collect, pause, and print Connect Time statistics; and to access the Device Management and Device Information windows.

- **Collect**

  Use Collect on the Commands pull-down menu to start or continue the chart updating process. Collect is inactive (gray) unless one or more devices are selected. When you choose Collect, the following occurs:

  — The chart is updated.

  — Print and Pause become active.

  — Collect becomes inactive.

  — The information displayed in the window is updated at an interval equal to the snapshot frequency.

- **Pause**

  Use Pause on the Commands pull-down menu to stop the chart updating process. When you choose Pause, the following occurs:

  — The chart update process is suspended.

  — Collect becomes active.

  — Pause becomes inactive (gray).

- **Device Management (DevMgt)**

  Use DevMgt on the Commands pull-down menu to access the Device Management window. This command is inactive (gray) unless a device list is selected. See Chapter 7, *Device Management*, for additional information.

  To access the Device Management window, either double-click on one of the devices listed in the window or select DevMgt from the Commands pull-down menu. All the devices listed in the current window are passed to the Device Management window's device selection list. The highlighted Device Name is the one acted upon first by Device Management.

  Accessing Device Management from the Commands pull-down menu does not close any of the Statistics windows.

- **Information (Info)**

  Use Info on the Commands pull-down menu to access the Device Information dialog box. This command is inactive (gray) unless a device is selected. Displayed in the dialog box is information about the currently selected device. See *Information Display* in Appendix A, *NMS Windows Conventions*, for additional information.

- **Print**

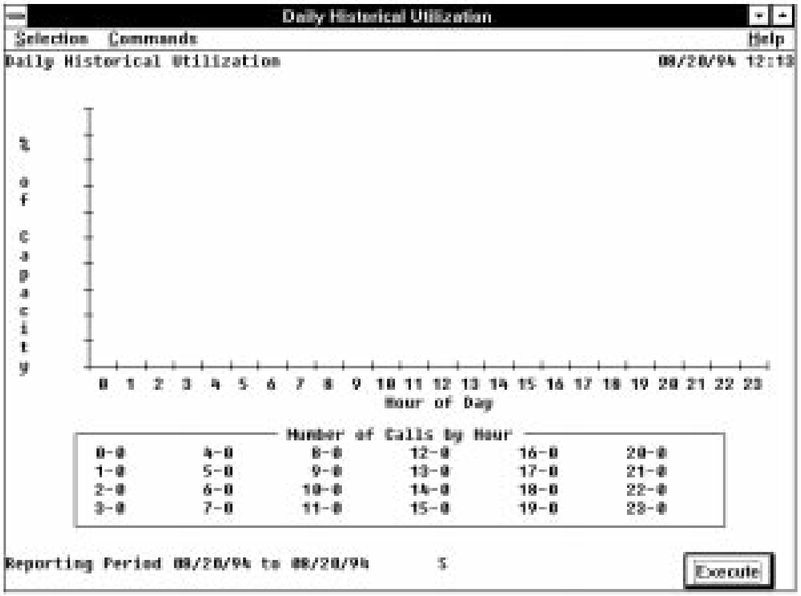
  Use Print on the Commands pull-down menu to print the Connect Time Utilization Monitor chart and associated data. This command is inactive (gray) unless a chart is displayed. See *Printing Statistics* on page 6-3 for additional information.

Daily Historical Utilization

The **Daily Historical Utilization** command uses a vertical bar chart to indicate the percentage of time selected local devices are in use during each hour of the day.

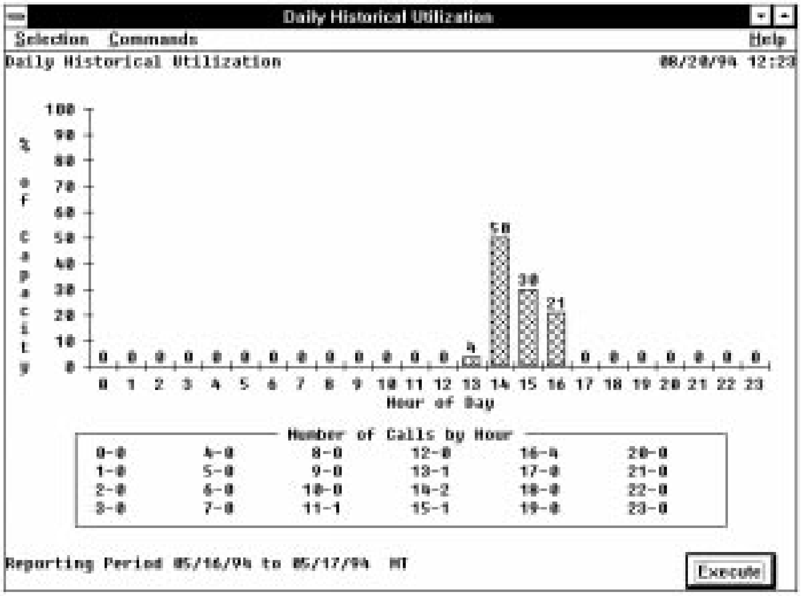
The daily information is an accumulation over a user-defined period for selected days. For example, the Daily Historical Utilization window can display the hourly usage for Monday through Friday during the 30-day period of June 1 to July 1.

Select Daily Historical Utilization from the Statistics pull-down menu to display the Daily Historical Utilization window. Displayed in the menu bar are **Selection** and **Commands**. The Execute button is inactive (gray) until a device(s) and time period are selected.



```
Daily Historical Utilization                                  08/20/94 12:13

            ─────────────── Number of Calls by Hour ───────────────
   0-0          4-0          8-0          12-0         16-0         20-0
   1-0          5-0          9-0          13-0         17-0         21-0
   2-0          6-0          10-0         14-0         18-0         22-0
   3-0          7-0          11-0         15-0         19-0         23-0

Reporting Period 08/20/94 to 08/20/94      5
```

After the device(s) and period have been selected, choose Execute to display the Daily Historical Utilization chart. The chart indicates the percentage of usage for the selected devices. The list below the chart displays the actual number of calls per hour. The reporting period and selected days of the week are displayed along the lower portion of the window.



```
Daily Historical Utilization                                    08/20/94 12:2

          ---------------------- Number of Calls by Hour ----------------------
          0-0          4-0          8-0          12-0         16-4         20-0
          1-0          5-0          9-0          13-1         17-0         21-0
          2-0          6-0         10-0          14-2         18-0         22-0
          3-0          7-0         11-1          15-1         19-0         23-0

Reporting Period 05/16/94 to 05/17/94  MT
```

Selection

Use Selection to designate the devices to be included in the chart title, or change the report period. Select Selection from the Daily Historical Utilization menu bar to display the Selection pull-down menu listing the commands **Device Selection**, **User Defined Title**, and **Select Report Period**.

- **Device Selection**

  Use Device Selection to select one or more devices to be represented in the Daily Historical Utilization chart. See *Selecting Devices* on page 6-2 for additional information. All devices in the device selection list are used for the Daily Historical Utilization chart.

- **User Defined Title**

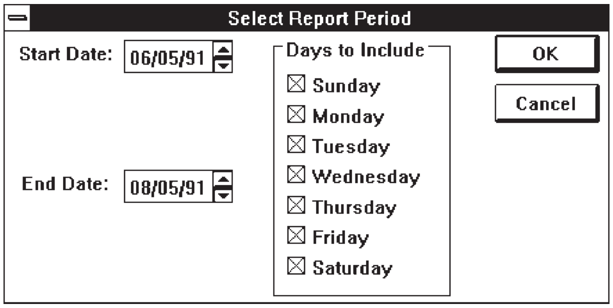
  Use User Defined Title to change the title of the Daily Historical Utilization chart. See *User Defined Titles* on page 6-3 for additional information on changing the title.

- **Select Report Period**

  Use Select Report Period to specify or change the days included in the chart. Follow the procedure below.

▶ Procedure

1. Choose Select Report Period from the Selection pull-down menu. The Select Report Period dialog box appears.



Start Date: 06/05/91
End Date: 08/05/91
☒ Sunday
☒ Monday
☒ Tuesday
☒ Wednesday
☒ Thursday
☒ Friday
☒ Saturday

2. Select the start date by using the scrolling **Start Date** field to set each part of the date (month, date, year). The current date is the default start date. See *Date Field* in Appendix A, *NMS Windows Conventions*, for additional information on scrolling date fields.
3. Select the end date by using the scrolling **End Date** field to set each part of the date (month, date, year). The current date is the default end date.
4. From within the **Days to Include** list box, select which days of the week to include in the graph. The days of the week not included in the data range are inactive (gray). The default day is the current day of the week.
5. Choose OK.

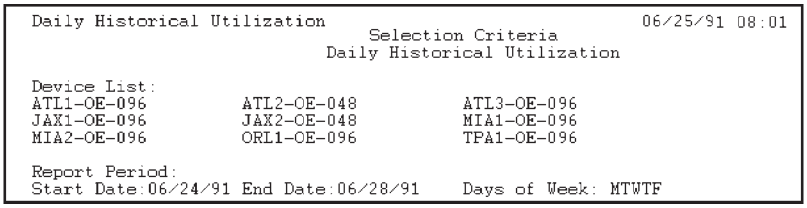
Commands

Select Commands on the Daily Historical Utilization menu bar to access the Print command.

- **Print**

  Use Print on the Commands pull-down menu to print the Daily Historical Utilization chart and associated data. This command is inactive (gray) unless a chart is displayed. See *Printing Statistics* on page 6-3 for additional information.

  In addition to the device list, the Selection Criteria page contains the start date, end date, and the selected days of the week.

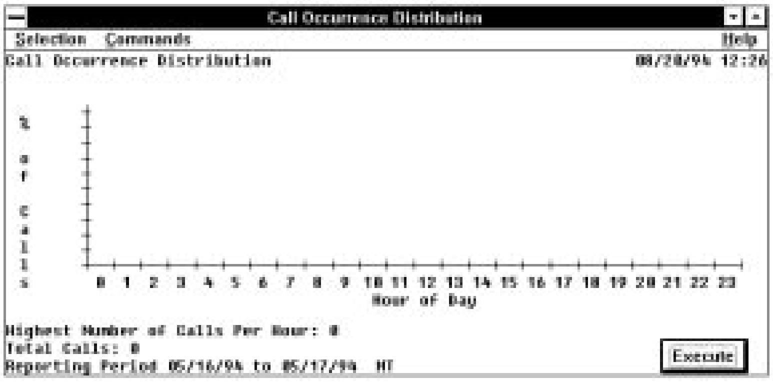


```
Daily Historical Utilization                                  06/25/91 08:01
                                     Selection Criteria
                                Daily Historical Utilization

Device List:
ATL1-OE-096          ATL2-OE-048          ATL3-OE-096
JAX1-OE-096          JAX2-OE-048          MIA1-OE-096
MIA2-OE-096          ORL1-OE-096          TPA1-OE-096

Report Period:
Start Date:06/24/91  End Date:06/28/91    Days of Week: MTWTF
```

Call Occurrence Distribution

The **Call Occurrence Distribution** command uses a vertical bar chart to display the percentage of calls per hour for the selected device(s). The percentage is computed by adding the number of calls for each hour for the selected period and/or devices and applying the percentage to the total number of calls for the same time period. For example, the Call Occurrence Distribution window can display the percentage of calls during the period of March 31 to April 1.

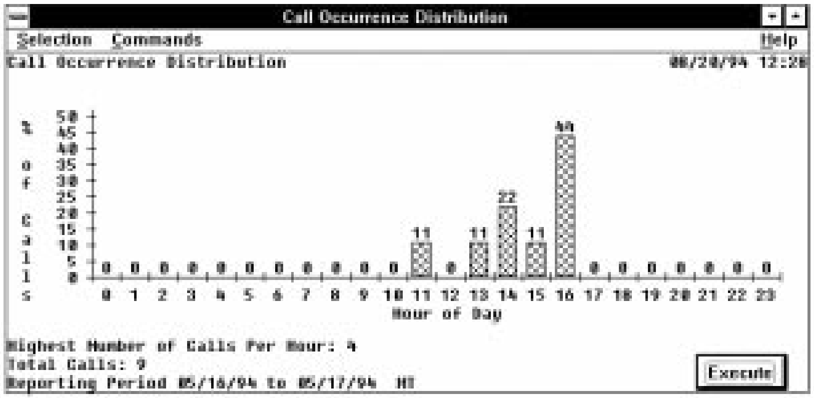
Select Call Occurrence Distribution from the Statistics pull-down menu to display the Call Occurrence Distribution window. Displayed in the menu bar are **Selection** and **Commands**. The Execute button is inactive (gray) until a device(s) and time period are selected.



Call Occurrence Distribution 08/20/94 12:26

Highest Number of Calls Per Hour: 0
Total Calls: 0
Reporting Period 05/16/94 to 05/17/94 HT

After the device(s) and period have been selected, choose Execute to display the Call Occurrence Distribution chart. The chart indicates the percentage of calls for the selected device(s).



Call Occurrence Distribution 08/20/94 12:28

Highest Number of Calls Per Hour: 4
Total Calls: 9
Reporting Period 05/16/94 to 05/17/94 HT

Selection

Use Selection to designate the devices to be included in the chart, change the chart title, or change the report period. Select Selection from the Call Occurrence Distribution menu bar to display the Selection pull-down menu listing the commands **Device Selection**, **User Defined Title**, and **Select Report Period**.

- **Device Selection**

  Use Device Selection to select one or more devices to be represented in the Call Occurrence Distribution chart. See *Selecting Devices* on page 6-2 for additional information. All devices in the device selection list are used for the Call Occurrence Distribution chart.

- **User Defined Title**

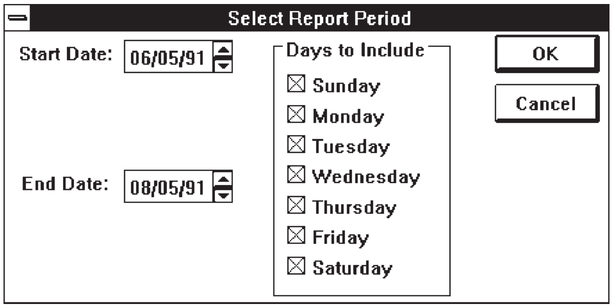
  Use User Defined Title to change the title of the Call Occurrence Distribution chart. See *User Defined Titles* on page 6-3 for additional information on changing the title.

- **Select Report Period**

  Use Select Report Period to specify or change the days included in the chart. Follow the procedure below.

Procedure

1. Choose Select Report Period from the Selection pull-down menu. The Select Report Period dialog box appears.



Select Report Period

Start Date: 06/05/91

End Date: 08/05/91

Days to Include
☒ Sunday
☒ Monday
☒ Tuesday
☒ Wednesday
☒ Thursday
☒ Friday
☒ Saturday

2. Select the start date by using the scrolling **Start Date** field to set each part of the date (month, date, year). The current date is the default start date. See *Date Field* in Appendix A, *NMS Windows Conventions*, for additional information on scrolling date fields.

3. Select the end date by using the scrolling **End Date** field to set each part of the date (month, date, year). The current date is the default end date.

4. From within the **Days to Include** list box, select which days to include in the data display. The days of the week not included in the date range are inactive (gray). The default day is the current day of the week.

5. Choose OK.

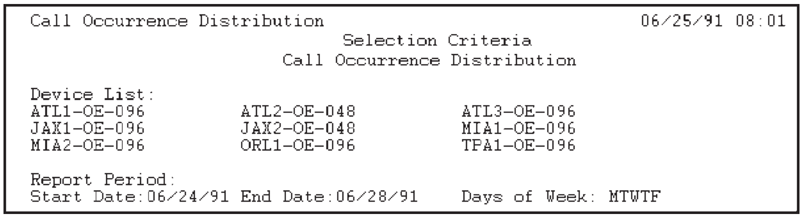
Commands

Select Commands on the Call Occurrence Distribution menu bar to access the Print command.

- **Print**

  Use Print to print the Call Occurrence Distribution chart and associated data. This command is inactive (gray) unless a chart is displayed. See *Printing Statistics* on page 6-3 for additional information.

In addition to the device list, the Selection Criteria page contains the start date, end date, and the selected days of the week.

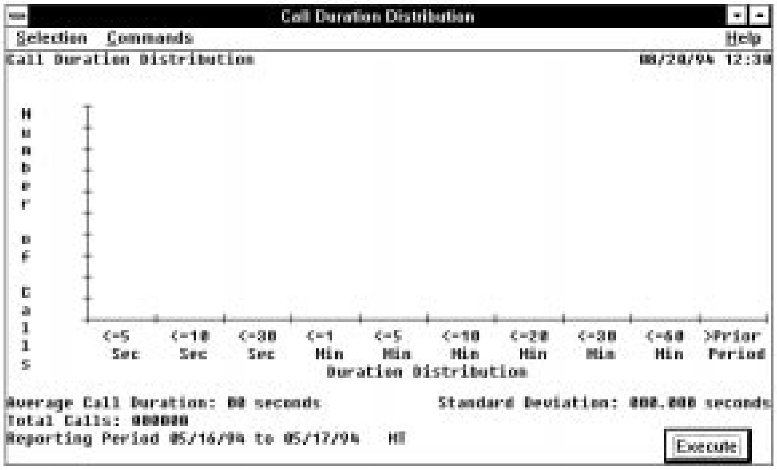


```
Call Occurrence Distribution                                   06/25/91 08:01
                              Selection Criteria
                        Call Occurrence Distribution

Device List:
ATL1-OE-096         ATL2-OE-048          ATL3-OE-096
JAX1-OE-096         JAX2-OE-048          MIA1-OE-096
MIA2-OE-096         ORL1-OE-096          TPA1-OE-096

Report Period:
Start Date:06/24/91 End Date:06/28/91    Days of Week: MTWTF
```

Call Duration Distribution

The **Call Duration Distribution** command uses a bar graph to display the number of calls, grouped by call length. Up to ten different call lengths (distribution periods) can be defined for a selected period.

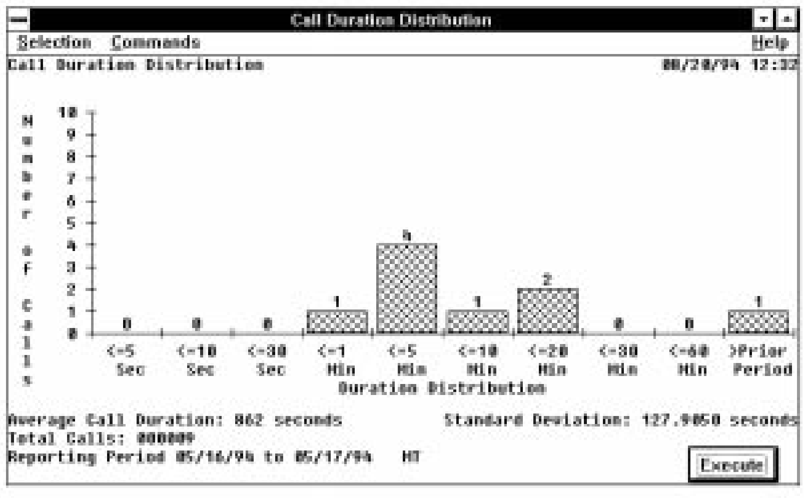
Select Call Duration Distribution from the Statistics pull-down menu to display the Call Duration Distribution window.



```
Call Duration Distribution                                08/20/94 12:30
Average Call Duration: 00 seconds        Standard Deviation: 000.000 seconds
Total Calls: 000000
Reporting Period 05/16/94 to 05/17/94   MT
```

Displayed in the menu bar are **Selection** and **Commands**. The Execute button is inactive (gray) until a device(s), time period, and distribution period(s) are selected.

After the device(s), period and intervals have been selected, choose Execute to display the Call Duration Distribution chart. The chart indicates the number of calls placed during the selected reporting period, for up to ten user-defined intervals. The list below the chart displays daily average call duration, the standard deviation, the total number of calls, the reporting period, and the days of the week used for the chart.



```
Average Call Duration: 862 seconds          Standard Deviation: 127.9050 seconds
Total Calls: 000009
Reporting Period 05/16/94 to 05/17/94   MT
```

Selection

Use Selection to designate the devices to be included in the chart, change the chart title, change the report period, or change the intervals monitored. Select Selection from the Call Duration Distribution menu bar to display the Selection pull-down menu listing the commands **Device Selection**, **User Defined Title**, **Select Report Period**, and **Distribution Periods**.

- **Device Selection**

  Use Device Selection to select one or more devices to be represented in the Call Duration Distribution chart. See *Selecting Devices* on page 6-2 for additional information. All devices in the device selection list are used for the Call Duration Distribution chart.

- **User Defined Title**

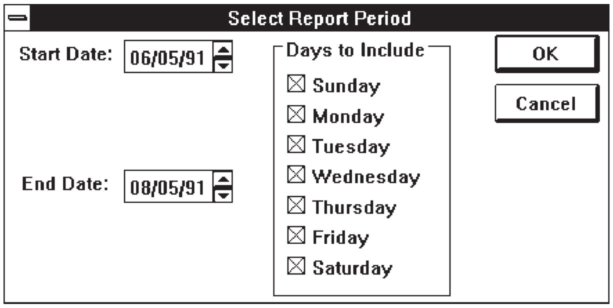
  Use User Defined Title to change the title of the Call Duration Distribution chart. See *User Defined Titles* on page 6-3 for additional information on changing the title.

- **Select Report Period**

  Use Select Report Period to specify or change the days included in the chart. Follow the procedure below.

▶ Procedure

1. Choose Select Report Period from the Selection pull-down menu. The Select Report Period dialog box appears.



Start Date: 06/05/91

End Date: 08/05/91

Days to Include
☒ Sunday
☒ Monday
☒ Tuesday
☒ Wednesday
☒ Thursday
☒ Friday
☒ Saturday

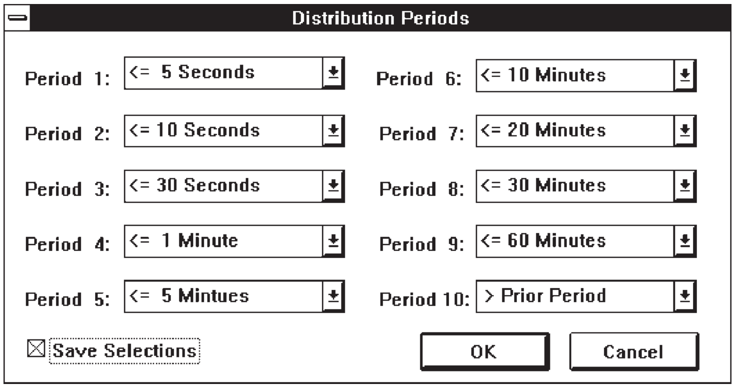
2. Select the start date by using the scrolling **Start Date** field to set each part of the date (month, date, year). The current date is the default start date. See *Date Field* in Appendix A, *NMS Windows Conventions*, for additional information on scrolling date fields.
3. Select the end date by using the scrolling **End Date** field to set each part of the date (month, date, year). The current date is the default end date.
4. From within the **Days to Include** list box, select which days to include in the chart. The days of the week not included in the data range are inactive (gray). The default day is the current day of the week.
5. Choose OK.

■ Distribution Periods

Use Distribution Periods to specify or change the periods included in the chart. Follow the procedure below.

▶ Procedure

1. Select Distribution Periods from the Selection pull-down menu. The Distribution Periods dialog box appears. The ten periods display with the current value shown in drop-down list boxes.



Period 1: <= 5 Seconds
Period 2: <= 10 Seconds
Period 3: <= 30 Seconds
Period 4: <= 1 Minute
Period 5: <= 5 Mintues
Period 6: <= 10 Minutes
Period 7: <= 20 Minutes
Period 8: <= 30 Minutes
Period 9: <= 60 Minutes
Period 10: > Prior Period

☒ Save Selections

2. Use the drop-down list boxes to change any of the displayed times. When selected, each drop-down list box displays a list of the period values: 5 seconds to 60 minutes, greater than 60 minutes, and Off (Period 1 cannot be set to Off). Use the scroll bar to select the desired value. The symbol “<=” means equal to or less than,“>” means greater than, and “Off” means that the period is not used.

   Each period must be longer than the next. Period 1 should be the shortest, Period 10 the longest period.

   If you do not want to use all ten periods, set one or more periods to Off. Turn the periods Off in reverse order, starting with Period 10 first, then Period 9, and Period 8, etc. For example, if seven periods are to be used, set Periods 8 through 10 to Off.

3. Select the Save Selection check box to make the new periods the default periods. The new periods are used each time the Call Duration Distribution window displays. Each user can save a unique set of periods for the Call Duration Distribution window. If the **Save Selection** check box is not selected, the current periods are used until the Call Duration Distribution window is closed and then the default periods restore.

4. Choose OK.

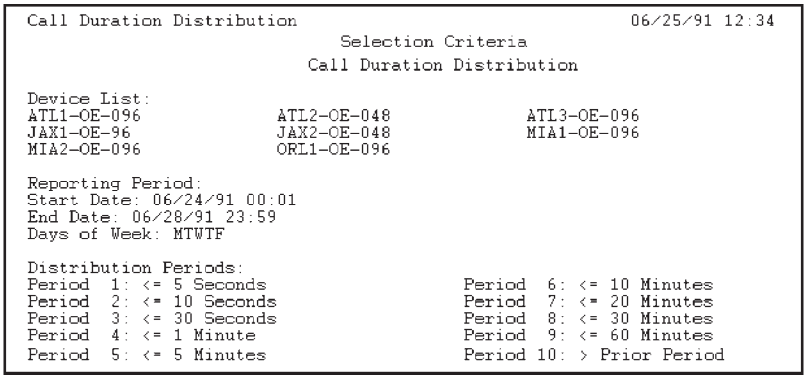
Commands

Use the Commands pull-down menu on the Call Duration Distribution menu bar to access the Print command.

- **Print**

  Use Print to print the Call Duration Distribution chart and associated data. This menu is inactive (gray) unless a chart is displayed. See *Printing Statistics* on page 6-3 for additional information.

In addition to the device list, the Selection Criteria page contains the start date, end date, selected days of the week, and selected distribution periods.

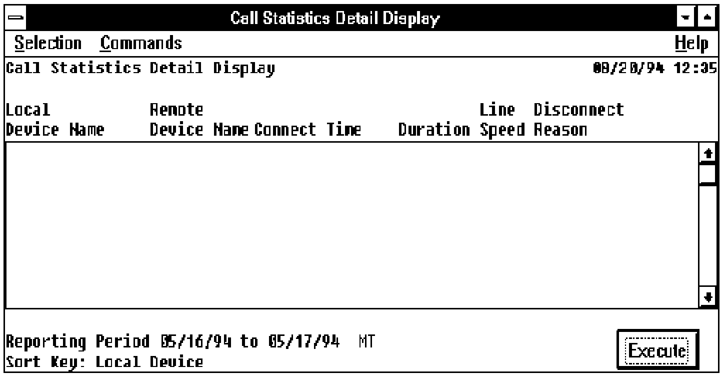


```
Call Duration Distribution                                06/25/91 12:34
                              Selection Criteria
                           Call Duration Distribution

Device List:
ATL1-OE-096               ATL2-OE-048               ATL3-OE-096
JAX1-OE-96                JAX2-OE-048               MIA1-OE-096
MIA2-OE-096               ORL1-OE-096

Reporting Period:
Start Date: 06/24/91 00:01
End Date: 06/28/91 23:59
Days of Week: MTWTF

Distribution Periods:
Period  1: <= 5 Seconds                   Period  6: <= 10 Minutes
Period  2: <= 10 Seconds                  Period  7: <= 20 Minutes
Period  3: <= 30 Seconds                  Period  8: <= 30 Minutes
Period  4: <= 1 Minute                    Period  9: <= 60 Minutes
Period  5: <= 5 Minutes                   Period 10: > Prior Period
```

Call Detail Display

The **Call Detail Display** command is used to display the database information for selected devices. A Call Detail Display report can also be generated via SNMP request.

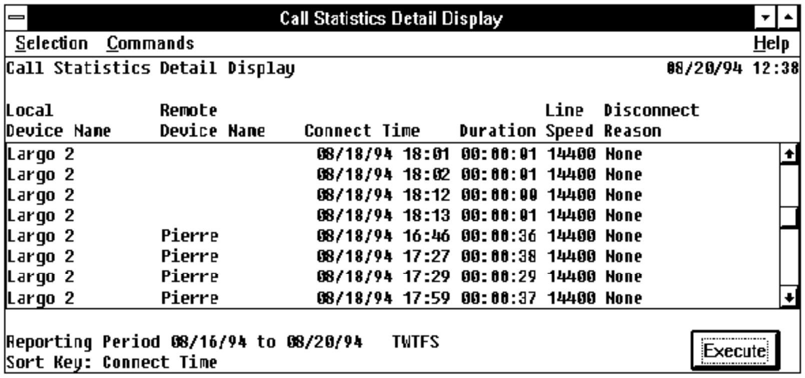
Select Call Detailed Display from the Statistics pull-down menu to display the Call Statistics Detail Display window.



```
Call Statistics Detail Display                                  08/20/94 12:35

Local           Remote                                 Line  Disconnect
Device Name     Device Name Connect Time     Duration Speed Reason

Reporting Period 05/16/94 to 05/17/94  MT
Sort Key: Local Device
```

Displayed in the menu bar are **Selection** and **Commands**. The **Execute** button is inactive (gray) until the device(s) and time period are selected.

After the device(s), time period, and sort field have been selected, choose Execute to display the Call Statistics Detail Display data.



```
Call Statistics Detail Display                                        08/20/94 12:38

Local           Remote                                    Line  Disconnect
Device Name     Device Name    Connect Time    Duration Speed Reason
Largo 2                          08/18/94 18:01 00:00:01 14400 None
Largo 2                          08/18/94 18:02 00:00:01 14400 None
Largo 2                          08/18/94 18:12 00:00:00 14400 None
Largo 2                          08/18/94 18:13 00:00:01 14400 None
Largo 2         Pierre           08/18/94 16:46 00:00:36 14400 None
Largo 2         Pierre           08/18/94 17:27 00:00:38 14400 None
Largo 2         Pierre           08/18/94 17:29 00:00:29 14400 None
Largo 2         Pierre           08/18/94 17:59 00:00:37 14400 None

Reporting Period 08/16/94 to 08/20/94   TWTFS
Sort Key: Connect Time
```

The display lists the selected device(s), sorted by the designated field. The possible fields, depending on the device selected, are as follows:

- **Local Device Name:** The name of the local device associated with the call.
- **Remote Device Name:** The name of the remote device associated with the call. The information contained in this field is device dependent and is not available from all devices.
- **Connect Time:** The date and time the call was initiated.
- **Duration:** The length of the call in hours, minutes and seconds.
- **Line Speed:** The baud rate used during the call.
- **Disconnect Reason:** The message reported by the device indicating the reason the call disconnected or failed. Valid entries are as follows:
  - **Busy Signal:** The remote device was busy.
  - **DTR Disconnect:** The device disconnected because the DTR dropped.
  - **EC Disconnect:** The device disconnected because of the failure to negotiate the EC mode or because the EC link failed.
  - **Invalid Number:** The device was unable to dial because the number was wrong.
  - **Ln Currnt Disc:** The device disconnected due to loss of the line current.
  - **Long Space Disc:** The device disconnected because a long space was detected.
  - **None:** Normal local or remote disconnect.
  - **No Answer Tone:** The remote device did not answer.
  - **No Carrier Disconnect:** The device disconnected because the carrier was not present.
  - **No Data Disc:** The device disconnected because no data was detected.
  - **No Dial-DTR:** The device was unable to dial because DTR was off.
  - **No Dial Tone:** The device aborted because there was no dial tone.
  - **No Prompt Tone:** No prompt tone, such as a credit card proceed tone, was received.
  - **Rmt Cmnded Disc:** The device disconnected due to V.32 Cleardown or Error Control (EC) disconnect received from the remote end.
  - **Trunk Busy:** The device received a Trunk Busy signal.

- **Error Control:** The type of error control used by the device. The error control values are listed as follows:
  - **Handshaking:** The device is connecting.
  - **Direct:** Device connects at a data rate equal to or less than the initial DTE rate.
  - **Buffered:** The device does not use error control.
  - **MNP 1:** Device uses MNP Class 1 data compression and error control.
  - **MNP 2:** Device uses MNP Class 2 data compression and error control.
  - **MNP 3:** Device uses MNP Class 3 data compression and error control.
  - **MNP 4:** Device uses MNP Class 4 data compression and error control.
  - **MNP 5:** Device uses MNP Class 5 data compression and error control.
  - **V42:** Device connects in V.42 error control using v42 link access procedure. If the connection fails, the Buffered mode is used.
  - **V42 bis:** Device connects in V.42 error control using v42 link access procedure. If the connection fails, the MNP mode is used.
  - **MNP 10:** Device uses MNP Class 10 data compression and error control.
- **Modem Config:** The way in which the device is configured.
  - **None:** Standard
  - **DDD:** Direct Dial Device
  - **2 Wire:** 2-wire cable
  - **4 Wire:** 4-wire cable
  - **Multipoint:** Multiple connection (MUX)
- **DTE Speed:** The rate at which the device communicates with the connected PC (or other device).

Selection

Use Selection to designate the devices to be included in the chart or to change the chart title, report period, or sort field. Choose Selection from the Call Statistics Detail Display menu bar to display the Selection pull-down menu listing the commands **Device Selection**, **Defined Title**, **Select Report Period**, and **Select Sort Key.**

- **Device Selection**

  Use Device Selection to select one or more devices to be represented in the Call Statistics Detail Display chart. See *Selecting Devices* on page 6-2 for additional information on selecting devices. All devices in the device selection list are used for the Call Statistics Detail Display chart.

- **User Defined Title**

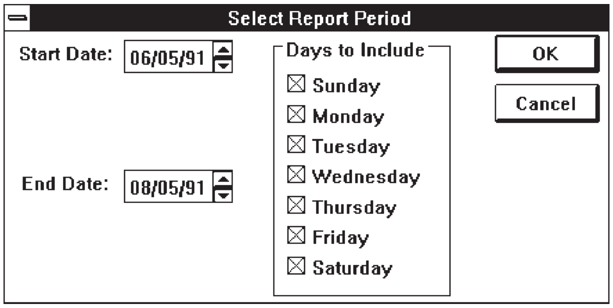
  Use User Defined Title to change the title of the Call Statistics Detail Display data listing. See *User Defined Titles* on page 6-3 for additional information on changing the title.

- **Select Report Period**

  Use Select Report Period to specify or change the days included in the data listing. Follow the procedure below.

▶ Procedure

1. Choose Select Report Period from the Selection pull-down menu. The Select Report Period dialog box appears.



Start Date: 06/05/91

End Date: 08/05/91

Days to Include
☒ Sunday
☒ Monday
☒ Tuesday
☒ Wednesday
☒ Thursday
☒ Friday
☒ Saturday

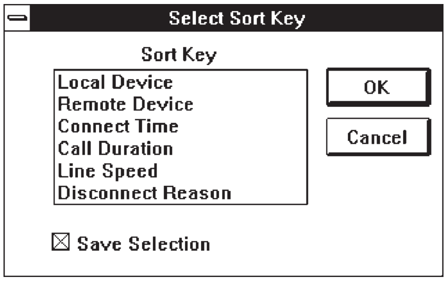
2. Select the start date by using the scrolling **Start Date** field to set each part of the date (month, date, year). The current date is the default start date. See *Date Field* in Appendix A, *NMS Windows Conventions*, for additional information on scrolling date fields.
3. Select the end date by using the scrolling **End Date** field to set each part of the date (month, date, year). The current date is the default end date.
4. From within the **Days to Include** list box, select which days to include in the data listing. The days of the week not included in the data range are inactive (gray). The default day is the current day of the week.
5. Choose OK.

- **Select Sort Key**

  Use Select Sort Key to specify or change which field the data display is sorted on. Follow the procedure below.

▶ Procedure

1. Choose Select Sort Key from the Selection pull-down menu. The Select Sort Key dialog box appears listing the six available sort fields.



2. Select one of the fields displayed in the list box.
3. Select the **Save Selection** check box to make the current sort field the default sort field. The new sort field is used each time the Call Statistics Detail Display displays. Each user can save a unique sort field for the Call Statistics Detail Display window. If the **Save Selection** check box is not selected, the sort field is used until the Call Statistics Detail Display window is closed and then the default sort field is restored.
4. Choose OK.

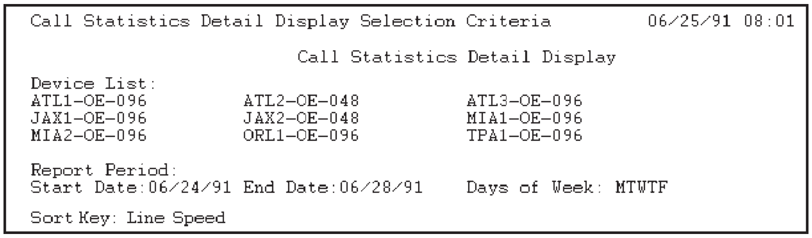
Commands

Use the **Commands** pull-down menu to access the Print command.

- **Print**

  Use Print to print the Call Statistics Detail Display data. This command is inactive (gray) unless a chart is displayed. See *Printing Statistics* on page 6-3 for additional information.

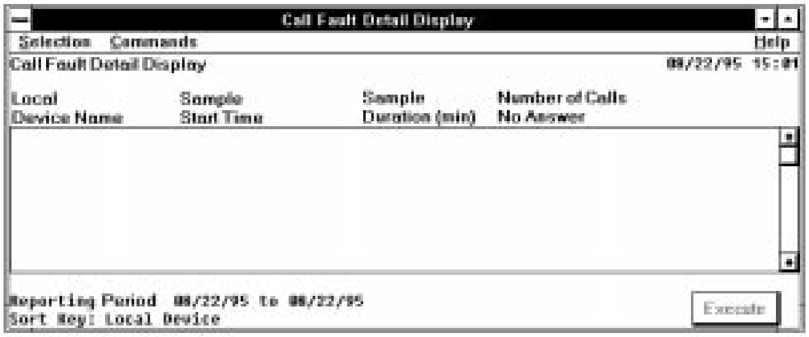
In addition to the device list, the Selection Criteria page contains the start date, end date, the selected days of the week, and the sort key.



```
Call Statistics Detail Display Selection Criteria          06/25/91  08:01

                         Call Statistics Detail Display

Device List:
ATL1-OE-096          ATL2-OE-048          ATL3-OE-096
JAX1-OE-096          JAX2-OE-048          MIA1-OE-096
MIA2-OE-096          ORL1-OE-096          TPA1-OE-096

Report Period:
Start Date:06/24/91 End Date:06/28/91     Days of Week: MTWTF

Sort Key: Line Speed
```

Call Fault Detail Display

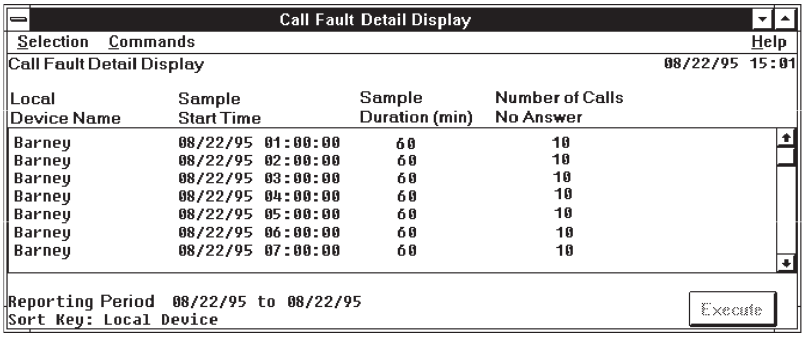
The **Call Fault Detail Display** command is used to display the collected call fault detail information for one or more local dial devices. Select Call Fault Detail Display from the Statistics pull-down menu to display the Call Fault Detail Display window.



```
Call Fault Detail Display                                          08/22/95 15:01

Local            Sample                Sample          Number of Calls
Device Name      Start Time            Duration (min)  No Answer

Reporting Period  08/22/95 to 08/22/95
Sort Key: Local Device
```

Displayed in the menu bar are **Selection** and **Commands**. The Execute button is inactive (gray) until the device(s) and time period are selected.

After the device(s), time period, and sort field have been selected, choose Execute to display the Call Fault Statistics Detail Display data.



```
Call Fault Detail Display                                          08/22/95 15:01

Local            Sample                Sample          Number of Calls
Device Name      Start Time            Duration (min)  No Answer
Barney           08/22/95 01:00:00      60               10
Barney           08/22/95 02:00:00      60               10
Barney           08/22/95 03:00:00      60               10
Barney           08/22/95 04:00:00      60               10
Barney           08/22/95 05:00:00      60               10
Barney           08/22/95 06:00:00      60               10
Barney           08/22/95 07:00:00      60               10

Reporting Period  08/22/95 to 08/22/95
Sort Key: Local Device
```

The display lists the selected device(s), sorted by the designated field. The fields are as follows:

- **Local Device Name:** The name of the local device associated with the call.
- **Sample Start Time:** The date and start time of the data collection sample period in hours, minutes and seconds.
- **Sample Duration (min):** The length (in minutes) of the sampling period.
- **Number of Calls No Answer:** The number of times during the sampling period that the device reported a call fault. A call fault is any call that was not answered or did not complete successfully. Only information for the selected sampling period will be stored in the database. If no information is displayed for a device, then no faults were reported for that device for the selected period.

Selection and Commands

The Selection command functions the same as Selection command used by Call Detail Display. See *Selection* on page 6-21. The Commands command functions the same as Commands command used by Call Detail Display. See *Commands* on page 6-23.

Device Management

7

Device Management Window Overview

This chapter explains how to access and use the Device Management portion of NMS. Device Management allows you to view the device status, test local and remote network devices, establish maintenance connections, and inquire into the device's identification information (for example: serial number, part number, options).

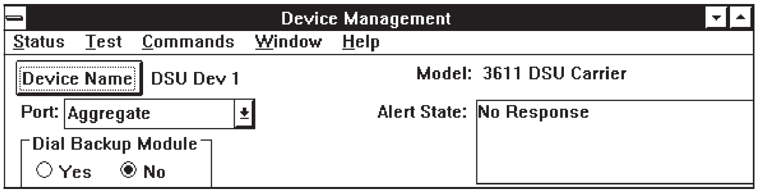
Access the Device Management menu by selecting DevMgt from any of the following menus:

- Commands pull-down menu from the Main Menu
- Network Map menu bar accessed from the Displays pull-down menu
- Cabinet Monitor menu bar accessed from the Displays pull-down menu
- Carrier Monitor menu bar accessed from the Displays pull-down menu
- Alert Monitor menu bar accessed from the Displays pull-down menu
- Hunt Group Monitor menu bar accessed from the Displays pull-down menu
- Connect Time Utilization Monitor menu bar accessed from the Statistics pull-down menu

Alternatively, you can double-click the Device Management icon in the Main Menu toolbar.

Device Management Window

Before the Device Management commands appear in the menu bar, a supported device must be selected.



Device Name: DSU Dev 1

Model: 3611 DSU Carrier

Port: Aggregate

Alert State: No Response

Dial Backup Module ○ Yes ● No

To select a device or change the device currently displayed, choose the Device Name button. The Device Selection List dialog box appears. Either:

- Type device name in the **Enter device** field,
- Select a name from the device selection list, or
- Choose Add To Selections to access the Device Name Selection Browser. See *Device Selection* in Appendix A, *NMS Windows Conventions*, for additional information on using the Selection Browser.

Other fields may appear, depending on the type of device selected.

Device Management Menu Commands

The following is a list of all possible Device Management menu commands with a brief description of each.

- **Status**

  Allows viewing of the VF impairments and DTE data line (EIA RS-232) conditions.

- **Test**

  Runs a series of tests on the selected device.

- **Commands**

  Opens the Device Identification window that displays information about the device, places or disconnects a call using the local device, prints the current Device Management window and all windows opened from it, lists special commands for DSU and APL devices, and displays a topographical representation of a selected device's connections.

- **Window**

  Allows for changing the method of displaying windows opened from the current Device Management window or closing all the windows opened from the current Device Management window.

Device Management Window Fields

The fields below the menu bar display the current device status information of the selected device. The information in these fields differs slightly, depending on the device selected. These fields can include **Model**, **Dial State**, **Alert State**, **Line Speed**, **Port**, and **Dial Backup Module** and appear once the **Device Name** is supplied. The possible fields visible in this window are described below.

- **Device Name:** The name of the device assigned during configuration. See Chapter 4, *Configuration*.
- **Model:** The model number of the device assigned during configuration.
- **Dial State:** This field indicates the device's status code. Valid entries are **Idle**, **Ring Indicate**, **Answering**, **Talk Mode**, **Off Hook**, **Dialing**, **Remote Ringing**, **On Line**, **Dial Backup**, and **Dial Standby**.
- **Alert State:** A list of the active alert descriptions reported by the device. The alert descriptions are in the assigned colors. See Chapter 4, *Configuration,* for more information. If more than two lines of alerts are reported, a scroll bar appears.
- **Line Speed:** If you check this box, this field indicates the speed during the connect time. The speed is updated periodically as long as the device is connected. If **Training** appears in this field, the speed has not been determined.
- **Port:** A field indicating where the test or command is to be sent (maximum 10 characters). When you select a port, all tests (excluding device test) are sent to the specified port. This field is valid for DSUs with the TDM or MCMP feature installed and for APL devices with the TDM or MSD feature installed.
  - Valid entries for DSUs are **1–6**, **None** (all requests are sent to the DSU) and **Aggregate** (the test runs between the two transmitters or receivers rather than between two ports).
  - Valid entries for APL devices are **1–4**, **None** (all requests are sent to the APL device) and **Aggregate** (the test runs between the two transmitters or receivers rather than between two ports).
- **Dial Backup Module:** A group box displayed for DSUs with the DBM feature installed. Select Yes to enable valid tests and commands pertinent to the DBM; all requests are sent to the dial backup module instead of the DSU. Select No to send all requests to the DSU instead of to the dial backup module.

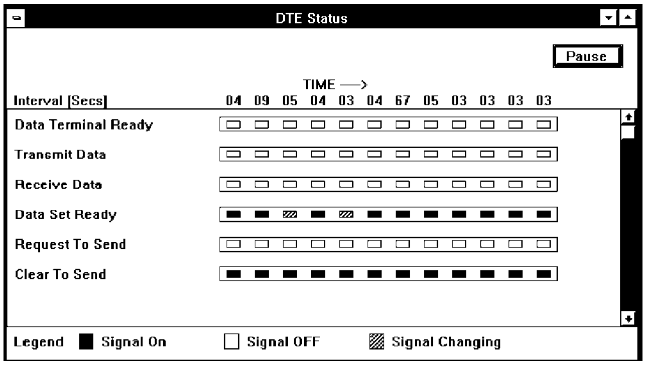
Status

Select Status from the Device Management menu bar and the Status pull-down menu appears. Use Status to view the condition of the device's DTE signals or VF impairments.

If the selected device is a DSU and the Dial Backup Module selection is No, the VF Status and Call Setup menu items are disabled.

DTE Status

Choose DTE Status from the Status pull-down menu to view the condition of the data terminal equipment (DTE) digital signals. The DTE Status window displays the condition of the data lines normally associated with data communication (EIA RS-232 and if applicable, RS-366). All the data lines may not display.



Interval [Secs]	04	09	05	04	03	04	67	05	03	03	03	03
Data Terminal Ready	□	□	□	□	□	□	□	□	□	□	□	□
Transmit Data	□	□	□	□	□	□	□	□	□	□	□	□
Receive Data	□	□	□	□	□	□	□	□	□	□	□	□
Data Set Ready	■	■	▨	■	▨	■	■	■	■	■	■	■
Request To Send	□	□	□	□	□	□	□	□	□	□	□	□
Clear To Send	■	■	■	■	■	■	■	■	■	■	■	■

Legend ■ Signal On □ Signal OFF ▨ Signal Changing

Table 7-1 lists the RS-232 data lines supported by NMS and Table 7-2 lists the RS-366 data lines supported by NMS. Data lines display is device dependent. Refer to the device's user's guide for additional information. Choose Execute to begin sampling the data lines.

Table 7-1. RS-232-Data Signals

Abbreviation	Signal Name	Signal Direction
DTR	Data Terminal Ready	From DTE
TXD	Transmit Data	From DTE
RXD	Receive Data	To DTE
DSR	Data Set Ready	To DTE
RTS	Request-to-Send	From DTE
CTS	Clear-to-Send	To DTE
DCD	Data Carrier Detect	To DTE
LSD	Line Signal Detect	From DTE
TM	Test Mode	From DTE
LL	Local Loopback	From DTE
RL	Remote Loopback	From DTE

Table 7-2. RS-366 Data Signals

Abbreviation	Signal Name	Signal Direction
DPR	Digit Present	From DTE
CRQ	Call Request	From DTE
DLO	Data Line Occupied	To DTE
PND	Present Next Digit	To DTE
DSC	Distant Station Connected	To DTE
ACR	Abandon Call & Retry	To DTE

Use the scroll bar to view those digital signals not currently in the window. Up to twelve states (samples) are shown, with the most recent sample added to the left of the display and the right-most sample deleted.

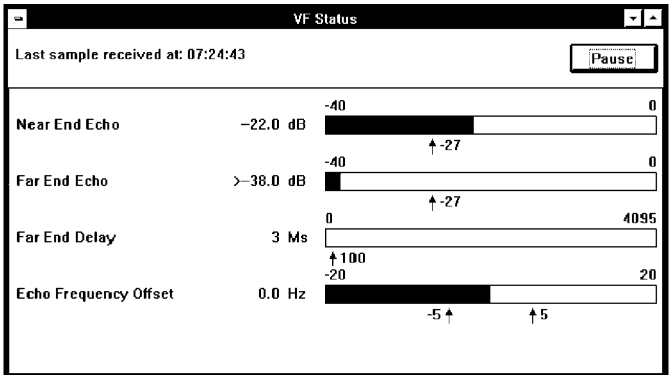
The time interval appears along the first row of each column. Each time interval indicates the number of seconds between samples and varies depending on other tasks currently running within the network. A time interval of 00 indicates the beginning of a sequence.

The legend at the bottom of the window indicates the colors for **Signal On** (a digital one or high), **Signal Off** (a digital zero or low), and **Signal Changing** (transit or changing during the sampling). The DTE status information is obtained by the device and displayed when polled by NMS. See the device's user's guide for additional information.

To pause (freeze) the display, choose Pause. The display stops updating the DTE status and **Resume** replaces **Pause**. To continue updating the display, choose Resume.

VF Status

To view the condition of the communications line, choose VF Status from the Status pull-down menu. The **VF Status** command displays the VF Status window.



Last sample received at: 07:24:43

Near End Echo −22.0 dB

Far End Echo >−38.0 dB

Far End Delay 3 Ms

Echo Frequency Offset 0.0 Hz

If the selected device is a DSU and the Dial Backup Module selection is No, the VF status menu item is disabled.

The VF impairments are listed in the left portion of the window. To the right of each impairment is a bar graph displaying the current status of the impairments. The device reports the VF conditions; NMS performs the analysis using the user-defined limits.

The user-defined limits, set within NMS, are shown as up arrows below each bar graph (see *Defining Thresholds for VF Impairments* in Chapter 4, *Configuration*). The number to the side of each arrow represents the limit's numeric value. Numeric values to the left of an arrow indicate a lower limit. Numeric values to the right of an arrow indicate an upper limit. Use the scroll bar to view those VF impairments not currently displayed within the window. Just below the VF Status title bar is the time the last sample was received.

To start the collection of impairments, choose Execute. To pause (freeze) the display, choose Pause. The display stops updating the VF Status and **Resume** replaces **Pause**. To continue updating the display, choose Resume.

Table 7-3 lists the VF impairment types with a brief description of each; VF impairments display is device dependent.

Table 7-3. VF Impairments (1 of 2)

VF Impairment Name	Description
Receive Level	Expressed in decibels referenced to one milliwatt (dBm); the actual strength of the received signal.
Signal/Noise Ratio	Expressed in decibels (dB), the ratio of the amplitude of the signal plus the noise to the amplitude of the noise.
Phase Jitter (20–300 Hz)	Expressed in degrees, the amount of phase difference (out-of-phase) between the transmitted carrier signal and the received carrier signal.
Non-Liner Distortion	Expressed in dB, the portion of the channel output that is nonlinear in relation to the input signal. Harmonic and intermodulation distortion would cause this kind of distortion.
Frequency Offset	Expressed in Hertz (Hz), the difference between the transmitted carrier frequency and the received carrier frequency.
Gain Hits	The number of positive or negative gain hits during the previous 15 minutes. A gain hit is a three dB change lasting more than four milliseconds.
Phase Hits	The number of phase hits during the previous 15 minutes. A phase hit is a phase change to a 1004 Hz test signal greater than 20 degrees.
Impulse Noise	The number of impulse hits during the previous 15 minutes. An impulse hit is a voltage surge of within six dB of the normal carrier level lasting more than four milliseconds.
Drop Outs	The number of dropouts during the previous 15 minutes. A dropout is a normal carrier level decrease greater than 12 dB lasting more than four milliseconds.
Retrains	The number of retransmissions during the previous 15 minutes.

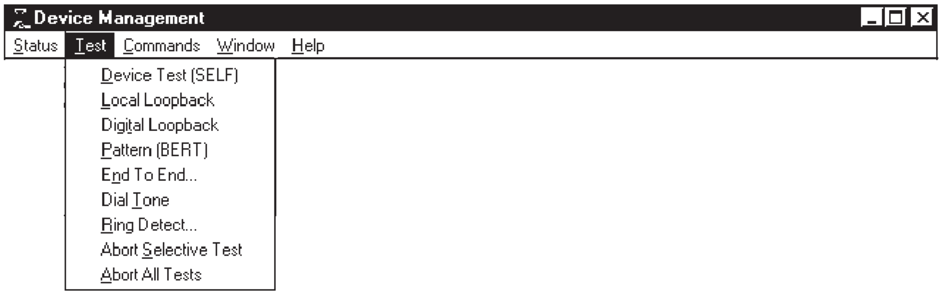
Table 7-3. VF Impairments (2 of 2)

VF Impairment Name	Description
Near End Echo	Expressed in dB, the ratio between the transmit signal and the receiver near end echo of the signal.
Far End Echo	Expressed in dB, the ratio between the transmit signal and the echo from the far end of the signal.
Far End Delay	Expressed in milliseconds, the roundtrip delay of the far end echo.
Echo Frequency Offset	Expressed in Hz, the frequency offset of the far end echo.
Signal Quality	A number used to indicate the quality of the signal where: 0 = Excellent 1 = Good 2 = Fair 3 = Poor 4 = No Signal NOTE: If the signal quality is set to “no signal,” no other impairments are displayed.

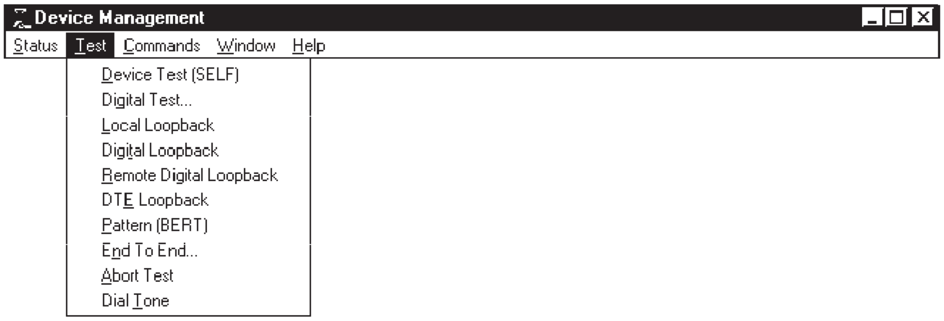
Test

Use Test to access a series of tests that can be performed on the device and line. Select Test from the Device Management menu bar to display the Test pull-down menu listing the commands such as **Device Test**, **Digital Test**, **Local Loopback**, **Digital Loopback**, **Remote Digital Loopback**, **DTE Loopback**, **Pattern (BERT)**, **End To End**, **Dial Tone**, **Ring Detect**, **Abort Selective Test**, and **Abort All Tests**.

COMSPHERE 2400, 3800 and 3900 Series devices are analog-type devices, while COMSPHERE 3600 devices are digital-type devices. Available tests differ depending on the type of device selected.



Test Pull-Down Menu for Analog-Type Devices



Test Pull-Down Menu for Digital-Type Devices

There are two primary types of tests, those that provide results and those that do not. Examples of the first type are **Device Test** and any of the loopback tests with the BERT pattern. The second type of test puts the device into a loopback test without the BERT pattern running.

An example of why you would use a test without returned results is using a loopback test without the BERT pattern to permit testing of the DTE-to-device connection. When the device is in the loopback test, characters sent from the DTE are echoed back to the DTE. Both local and remote (end-to-end) types of tests can be performed.

To begin any of the tests, choose Execute.

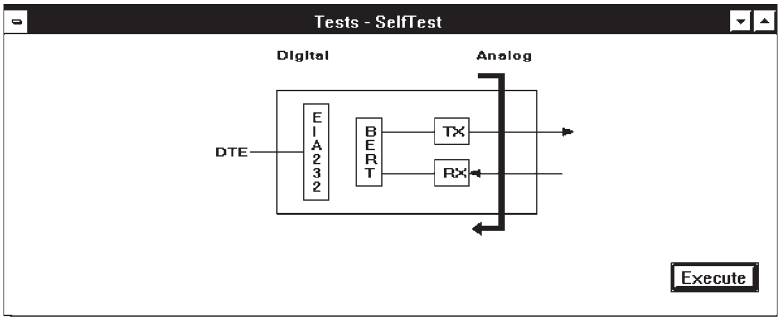
To initiate a test, a local device must be selected. Tests cannot be run on devices using a maintenance connection.

Each test displays a pictorial representation of the device(s) being tested with the active areas displayed using the **Test In Progress** color. To halt a test for the selected device and all downstream devices before completion, choose Abort. When the test is completed, any results obtained appear in the lower portion of the window. To run the test again, choose Execute.

Do not execute any of the tests when the device is in use. The tests may interrupt primary data (IPD) and disconnect the device when completed.

Device Test (SELF)

Choose Device Test (SELF) from the Test pull-down menu to run the device's self-test. Possible results are **Test Passed** or **Test Failed**. The following example shows the Device Test window before starting the test. Refer to the device's user's guide for a detailed description of device or self-test.

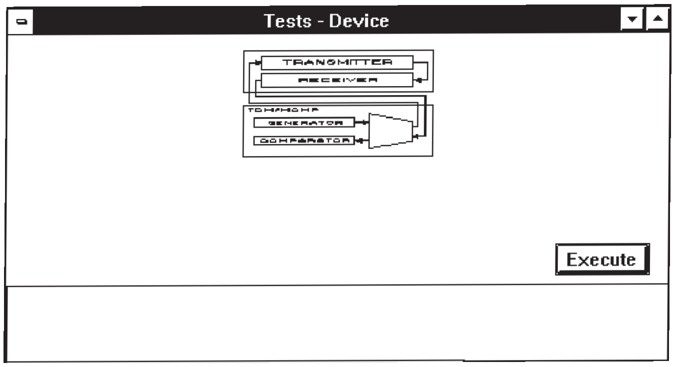


Example Device Test Window for Analog-Type Devices

Digital Test

Choose Digital Test from the Test pull-down menu for digital devices only to test a pair of DSUs and the digital network circuit between them. A bit pattern is looped through one tributary device and back to the control device, which checks the received data for errors.

After selecting Digital Test, a Remote Device selection box appears. Select a remote device to begin this test (see *Device Selection* in Appendix A, *NMS Windows Conventions*). The following example shows a Digital Test for a DSU with no TDM or MCMP.



Example Device Test Window for Digital-Type Devices

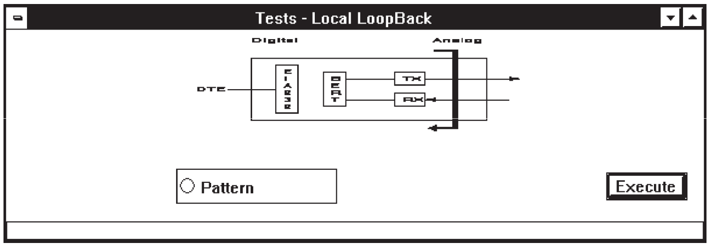
Local Loopback

Choose Local Loopback from the Test pull-down menu to put the device in an Analog Loopback mode. For local devices only, this test connects the local analog transmitter to the local analog receiver.

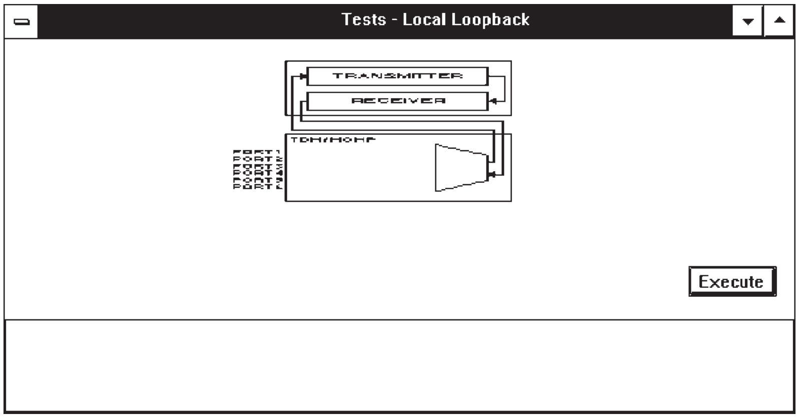
If desired, select Pattern (BERT) to cause a bit error rate test (BERT) pattern to be transmitted and received while monitoring for errors. If you select Pattern (BERT), the test time (**Duration**) appears. To change the test time, choose either the up arrow to increase the time or the down arrow to decrease the time. The test time can be changed from 30 to 900 seconds (15 minutes) in 10-second increments. Refer to *Range Field* in Appendix A, *NMS Windows Conventions*, for more details on using this field.

At the completion of the test, any Pattern test results obtained appear in the lower portion of the window. See *Pattern (BERT)* on page 7-13 for a detailed description of the test parameter fields.

The following examples show a running Local Loopback test with Pattern selected. If Pattern (BERT) was not selected, choose the Abort button or the Abort Test command from the Test pull-down menu to halt the test.



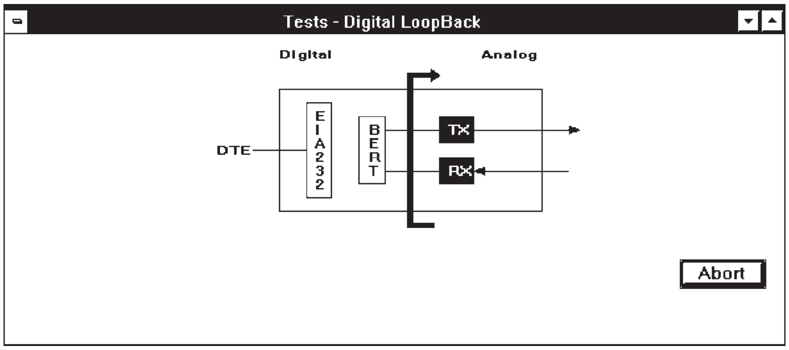
Local Loopback Window for Analog-Type Devices



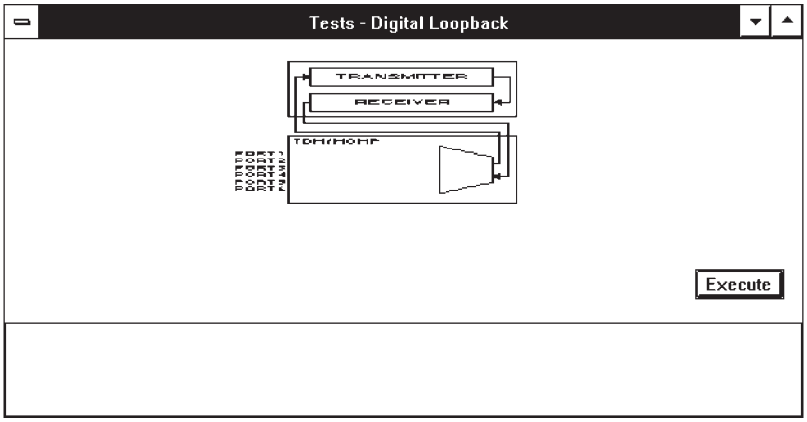
Local Loopback Window for Digital-Type Devices

Digital Loopback

Choose Digital Loopback from the Test pull-down menu to run a local Digital Loopback test. For local devices only, this test connects the local digital transmitter to the local digital receiver. The following examples show the Digital Loopback test running without Pattern (BERT) selected.



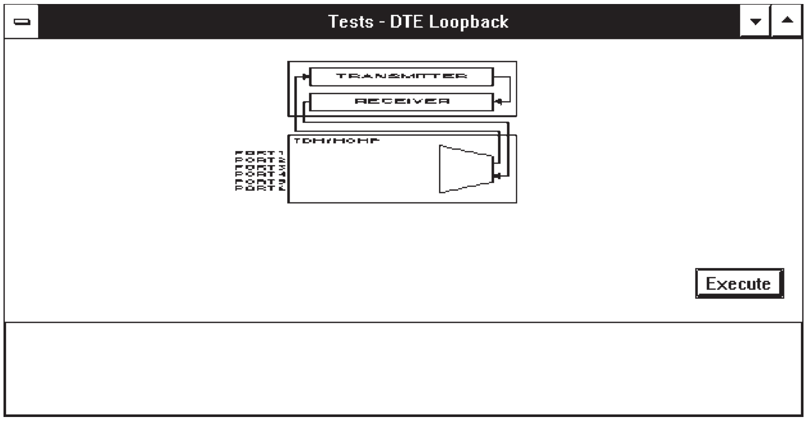
Digital Loopback Window for Analog-Type Devices



Digital Loopback Window for Digital-Type Devices

DTE Loopback

Choose DTE Loopback from the Test pull-down menu to run a DTE Loopback test. The DTE Loopback test is valid only for 3600 Series DSUs with TDM/MCMP installed.



Remote Digital Loopback

Choose Remote Digital Loopback from the Test pull-down menu to run a Remote Digital Loopback test. This test connects the remote digital receiver to the remote digital transmitter.

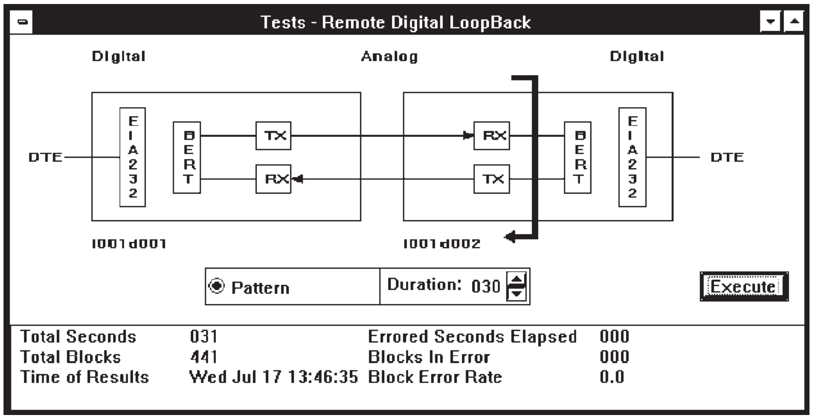
A remote device must be connected before this test can run. If no remote device is connected to the local device, or to change the currently connected device, use Call Setup. If no remote device is connected, a dialog box appears directing you to use Call Setup. See Chapter 8, *Dial Function,* for information on connecting or disconnecting a device.

If desired, select Pattern (BERT) to cause a bit error rate test (BERT) pattern to be transmitted and received while monitoring for errors. If Pattern (BERT) is selected the test time (**DURATION**) appears.

To change the test time, choose either the up arrow to increase the time or the down arrow to decrease the time. The test time can be changed from 30 to 900 seconds (15 minutes) in 10-second increments. Refer to *Range Field* in Appendix A, *NMS Windows Conventions*, for more details on using this field.

While the test is running, periodic results (approximately every 30 seconds) appear in the lower portion of the window. At the completion of the test, the Pattern results appear. See *Pattern (BERT)* on page 7-13 for a detailed description of the test parameter fields.

The following is an example of a completed Remote Loopback test with Pattern (BERT) selected. If Pattern was not selected, choose the Abort button or the **Abort** command from the Test pull-down Window menu to halt the test.



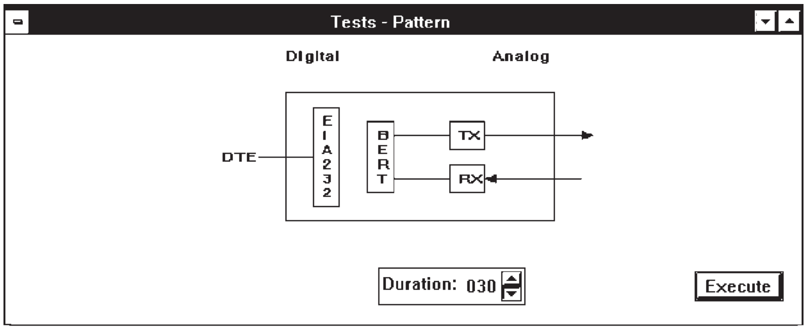
◉ Pattern

Duration: 030

Total Seconds	031	Errored Seconds Elapsed	000
Total Blocks	441	Blocks In Error	000
Time of Results	Wed Jul 17 13:46:35	Block Error Rate	0.0

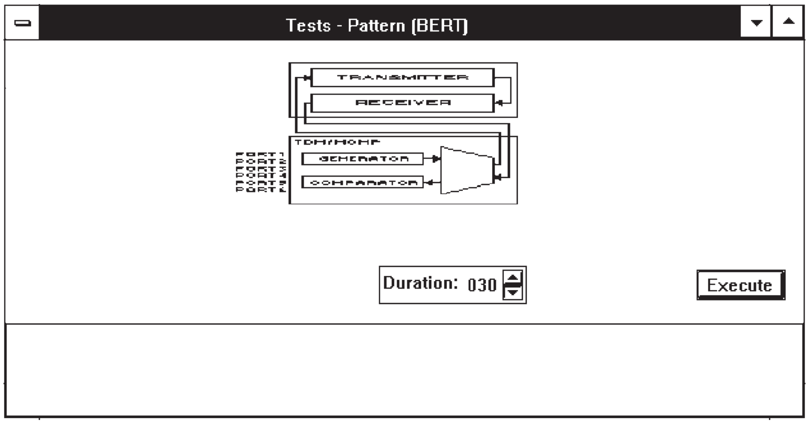
Pattern (BERT)

Choose Pattern (BERT) from the Test pull-down menu to cause the selected device to transmit a bit error rate test (BERT) pattern and monitor for errors. A remote device must be connected and transmitting the BERT pattern. Choose Pattern (BERT) and the Pattern window appears.



Duration: 030

Pattern Window for Analog Type Devices



Duration: 030

Pattern Window for Digital-Type Devices

Before executing the **Pattern (BERT)** command, you can change the test time. Use the scroll arrows in the **Duration** box to increase or decrease the time. The test time range is from 30 to 900 seconds (15 minutes) in 10-second increments. Refer to *Range Field* in Appendix A, NMS *Windows Conventions*, for more details on using this field.

At the completion of the test, the test results appear in the lower portion of the window. Table 7-4 lists the pattern test parameter fields with a description of each. The message **Not in sync** indicates the local and remote devices did not synchronize.

Table 7-4. Pattern Test Parameter Fields

Test Results	**Description**
Total Seconds	The total test time in seconds.
Errored Seconds Elapsed	The number of seconds with errors.
Total Blocks or Bits (for 3600 Series DSU)	The total number of blocks or bits (for 3600 Series DSU) tested.
Blocks In Error or Bits In Error (for 3600 Series DSU)	The number of blocks or bits (for 3600 Series DSU) detected containing an error.
Time of Results	The received time of the last result.
Block Error Rate or Bit Error Rate (for 3600 Series DSU)	The computed value of the blocks or bits (for 3600 Series DSU) in error/total blocks or bits.

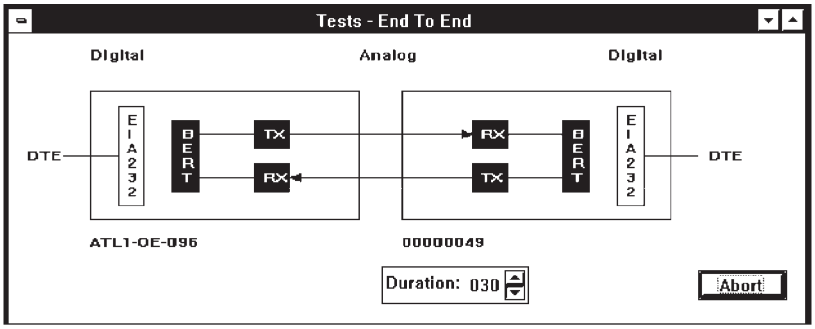
End-To-End

For leased-line devices or a connected dial modem, choose the End To End command from the Test pull-down menu to cause the local and remote devices to simultaneously transmit, receive and test for the BERT pattern. A remote device must be connected before this test can run.

After selecting End-to-End Test, a Remote Device selection box appears for all leased-line connections. Select a remote device to begin this test.

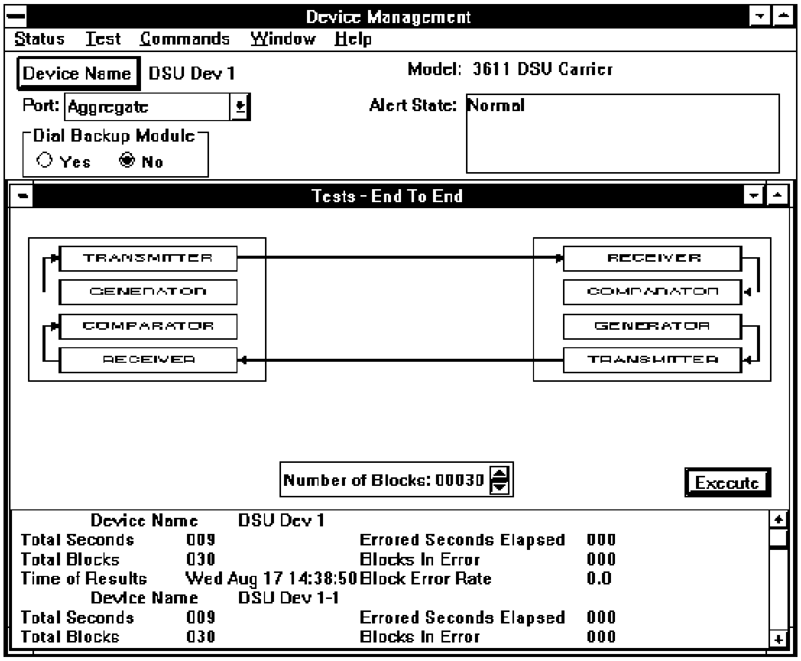
Before executing this command, you can change the test time for 3800 and 3900 Series devices. Use the scroll arrows in the **Duration** box to increase or decrease the time. The test time range is from 30 to 900 seconds (15 minutes) in 10-second increments. From within the **Duration** box, choose either the up arrow to increase the time, or the down arrow to decrease the time. For 3600 Series devices, you can change the number of blocks using the scroll arrows in the **Number of Blocks** field. Refer to *Range Field* in Appendix A, *NMS Windows Conventions*, for more details on using this field.

The following examples show the End-To-End test running.



Duration: 030

End-To-End Window for Analog-Type Devices



Device Name DSU Dev 1

Model: 3611 DSU Carrier

Port: Aggregate

Alert State: Normal

Dial Backup Module ○ Yes ● No

Number of Blocks: 00030

```
          Device Name       DSU Dev 1
Total Seconds       009                   Errored Seconds Elapsed    000
Total Blocks        030                   Blocks In Error            000
Time of Results     Wed Aug 17 14:38:50   Block Error Rate           0.0
          Device Name       DSU Dev 1-1
Total Seconds       009                   Errored Seconds Elapsed    000
Total Blocks        030                   Blocks In Error            000
```

End-to-End Window for Digital-Type Devices

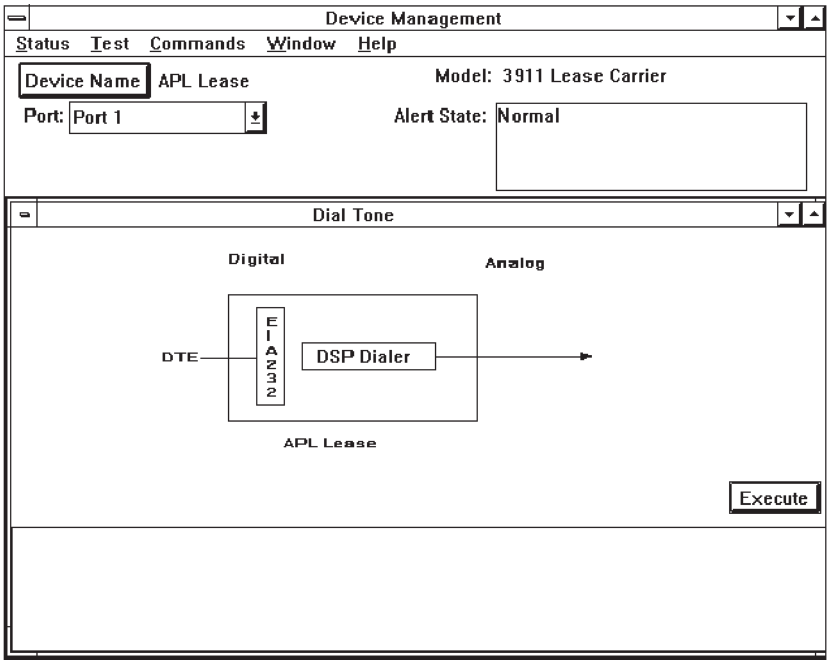
When the test is complete, the test results for both devices appear in the lower section of the window. See *Pattern (BERT)* on page 7-13 for a detailed description of the test parameter fields.

Dial Tone

Choose Dial Tone from the Test pull-down menu to run the Dial Tone test. This test causes the selected device to go off-hook and recognize the resulting dial tone.

Once a valid dial tone is recognized, the dial line will be released and the test results will be either:

- **Dial Tone was Detected**, or
- **No Dial Tone Detected**



Device Name: APL Lease

Port: Port 1

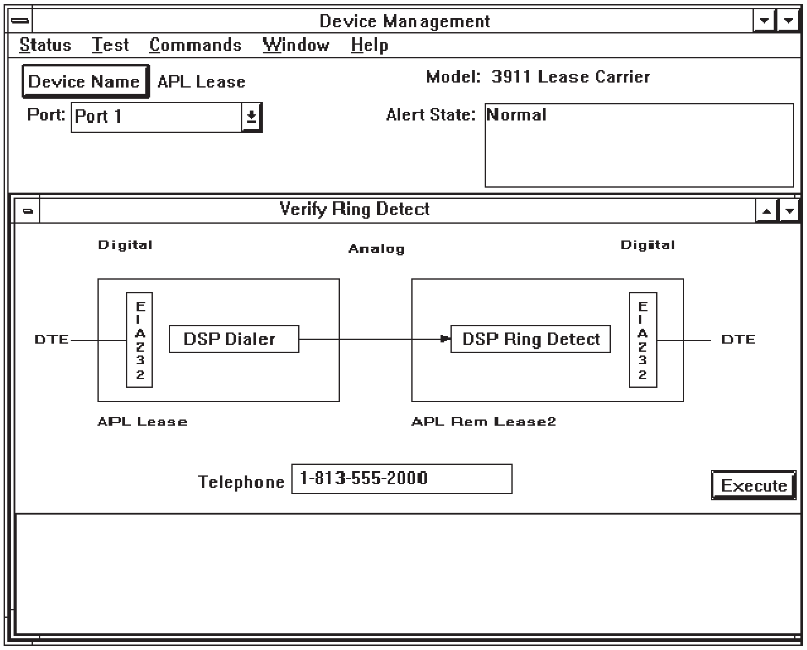
Model: 3911 Lease Carrier

Alert State: Normal

Ring Detect

Choose Ring Detect from the Test pull-down menu to run the Ring Detect test. This test causes the selected local device to look for a ring tone for a maximum of 30 seconds before terminating the test.

After choosing Ring Detect from the Test pull-down menu, select the desired local device. The Ring Detect Test Window appears.



Device Name: APL Lease
Model: 3911 Lease Carrier
Port: Port 1
Alert State: Normal
Telephone: 1-813-555-2000

Enter the telephone number to be used to ring the remote device to begin the test. Once the remote device acknowledges that the test is running, the local device dials the remote device using the entered telephone number. The DSP Dialer and the DSP Ring Detect areas change color to indicate that a test is in progress.

Once a ring is detected, the call is canceled and the test results are **Dial Ring was Detected**. If no ring is detected within the allotted time, the test is aborted and the test results are **No Ring Detected**.

Abort Selective Test

Choose the Abort Selective Test command from the Test pull-down menu to abort any test running on the selected device. This command aborts any test regardless of how the test was initiated.

The duration of a test depends on the number of devices assigned to the control channel or the number of installed remote devices.

Abort All Tests

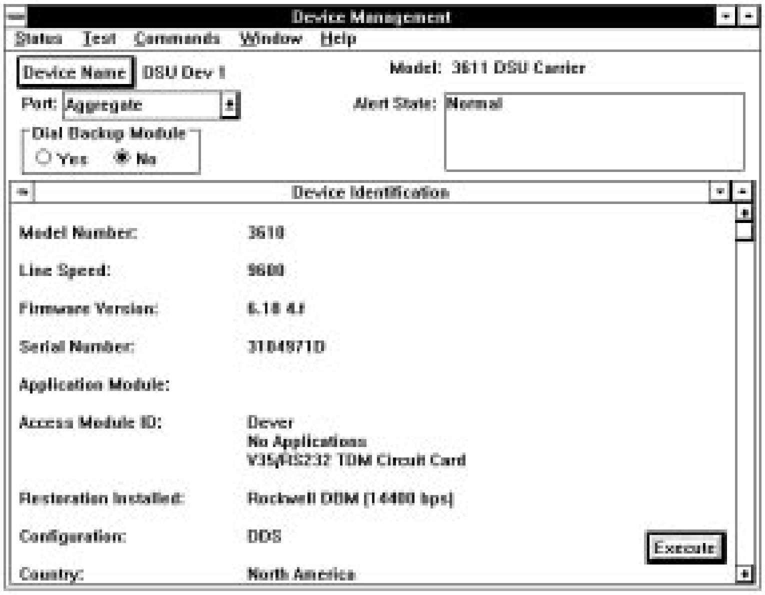
Choose the Abort All Tests command from the Test pull-down menu to abort any test running on the selected device, as well as all tests running on downstream devices. This command aborts any test regardless of how the test was initiated.

Commands

Use the Commands pull-down menu to access commands for identifying, testing, and controlling devices. The commands on this menu vary, depending on the selected device. Possible commands include **ID**, **CallSetup**, **Connectivity,** **Disable**, **Enable**, **External Leads**, **Reset Device**, **Local Telephone**, **Report Terminal Power**, **Send Message**, **Standby Facility**, **ISDN Telephone Numbers**, **Service Profile ID's**, **Reset Device**, **Reset Call Counter**, and **Print**. Each of these commands is detailed in the following sections.

Device Identification

Choose ID from the Commands pull-down menu to display the Device Identification window. Use this window to view information obtained from the device.



Device Name: DSU Dev 1

Model: 3611 DSU Carrier

Port: Aggregate

Alert State: Normal

Dial Backup Module: ○ Yes ● No

Model Number: 3610

Line Speed: 9600

Firmware Version: 6.18 4.f

Serial Number: 3104971D

Application Module:

Access Module ID: Dever
No Applications
V35/RS232 TDM Circuit Card

Restoration Installed: Rockwell DBM (14400 bps)

Configuration: DDS

Country: North America

Except for the Execute button, the window is blank until the information is obtained from the device. Choose Execute to start the function. During the period of time the information is transferring from the device, **Execute** changes to **Abort**. Choose Abort to stop the process.

When the information is received, it appears in the Device Identification window and **Abort** changes back to **Execute**.

Table 7-5 lists the possible Device Identification fields with a brief description of each. These fields differ, depending on the device selected. Refer to the specific device's operating manual for a detailed description. Use the vertical scroll bar to view any fields not in the window.

Table 7-5. Device Identification Fields

Information Field	Description
Model Number	The Paradyne assigned model number.
Line Speed	The current operating line speed.
Software Revision	The current software level (Major, Minor, PTF) of the firmware residing in the device.
Firmware Version	The current firmware level (Major, Minor) of the firmware residing within the device.
Serial Number	The Paradyne assigned serial number.
Application Module	Identifies if the type of application module is installed in the device.
Features Installed	Optional Features currently installed in the device. Refer to the appropriate device type user's guide for valid features.
Restoration Installed	The type of restoration that the device will use for backup. Refer to the appropriate device type user's guide for valid restoration features.
Configuration	The current configuration options of the device. For example: DDD, 2-wire APL, 4-wire APL.
Country	The current international option.
Hardware Part Number	The Paradyne assigned hardware part number.
Software Part Number	The Paradyne assigned software part number.

NOTE:

If the information concerning firmware version, serial number or features received from the device does not agree with the Device Profile, an Invalid profile window appears to allow you to update the Device Profile record.

Call Setup

Choose CallSetup from the Commands pull-down menu bar to connect a local device to a remote device. The CallSetup function is disabled for DSUs without the DBM feature installed. The **CallSetup** command displays the Dial window. See Chapter 8, *Dial Function*, for more information.

Disable

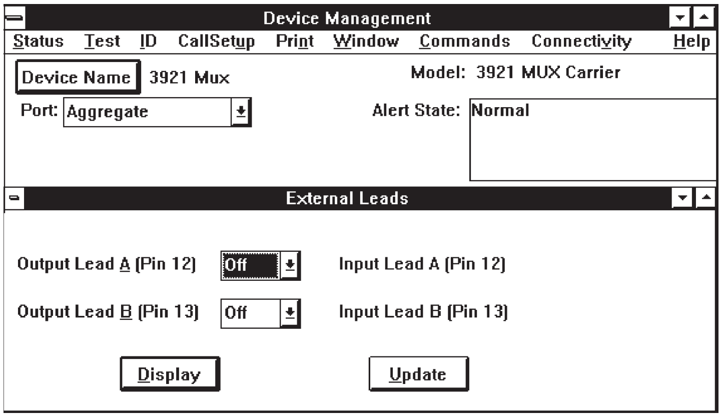
Choose Disable from the Commands pull-down menu to disable a DSU or APL transmitter; DBM; or the TDM, MSM, or MCMP ports. This command is not available if the selected device or port is already disabled. A message box appears to announce the completion of the request.

Enable

Choose Enable from the Commands pull-down menu to enable a DSU or APL transmitter; DBM; or the TDM, MSM, or MCMP ports. This command is not available if the selected device or port is already enabled. A message box appears to announce the completion of the request.

External Leads

Choose External Leads from the Commands pull-down menu to either display the state of the four general purpose leads or to change the state of the two output leads on the EIA-232-D/V.24 interface. When you choose External Leads, the External Leads window appears.



Device Name: 3921 Mux
Model: 3921 MUX Carrier
Port: Aggregate
Alert State: Normal
Output Lead A (Pin 12): Off
Input Lead A (Pin 12)
Output Lead B (Pin 13): Off
Input Lead B (Pin 13)

The current state of the external leads is read from the device and appears in the drop-down list box. You can change the value, either **On** or **Off**, if desired.

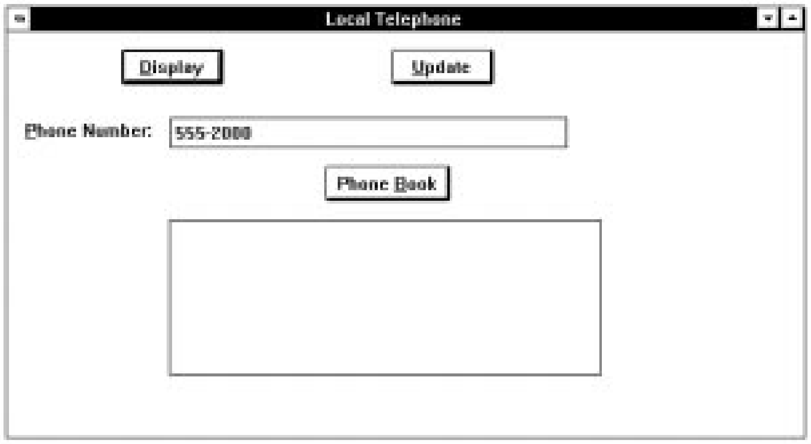
Choose Display to read the current state of the external leads from the device. Choose Update to send the current value of the output leads as shown to the device.

NOTE:

This command is not applicable to a Dial device within a carrier.

Local Telephone

Choose Local Telephone from the Commands pull-down menu to display or change the local telephone assigned to the DBM using the Local Telephone window. This command is only available to DSU devices with a DBM installed.



Phone Number: 555-2000

The current telephone number is read from the device and displayed in the **Phone Number** field. You can change this phone number, if desired.

Choose Display to read the current telephone number from the device. Choose Update to send the new phone number that you have entered, either by typing a number into the **Phone Number** field or by selecting a number from the Phone Book to the device. See Chapter 4, *Configuration,* for additional information about the Phone Book.

Report Terminal Power

Choose Report Terminal Power from the Commands pull-down menu to determine if the terminal connected to a data channel is powered on. The device checks for a voltage level on its Request to Send (RTS) lead and a dialog box appears with a message explaining the results of the request. This command is only available to DSU devices.

Send Message

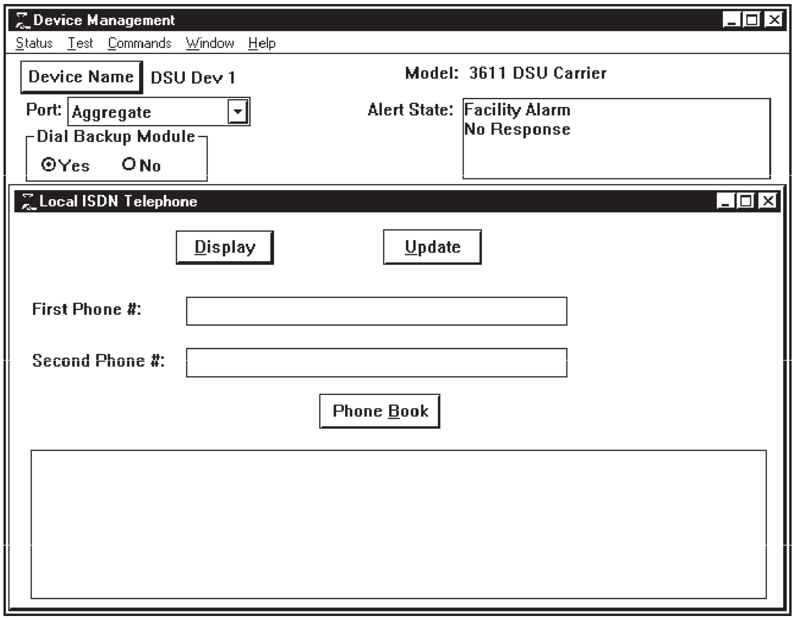
Choose Send Message from the Commands pull-down menu to send a message of up to 40 characters to the selected device's front panel display. Type the message in the **Send** field, then choose Send. This command is only available to DSU devices.

Standby Facility

Choose Standby Facility from the Commands pull-down menu to establish or disconnect the Dial Backup facility for a DSU device. When the Standby Facility dialog box is displayed, choose either Originate to request a DSU DBM device to establish a DDD backup facility or Release to request a DSU DBM device to disconnect a DDD backup facility.

ISDN Telephone Numbers

Choose ISDN Telephone Numbers from the Commands pull-down menu to display and update the local telephone numbers assigned to an ISDN DBM configuration. When you choose ISDN Telephone Numbers, the Local ISDN Telephone window appears.



Device Name: DSU Dev 1

Model: 3611 DSU Carrier

Port: Aggregate

Alert State: Facility Alarm
No Response

Dial Backup Module: ● Yes ○ No

Choose Display to read the local ISDN telephone numbers from the device.

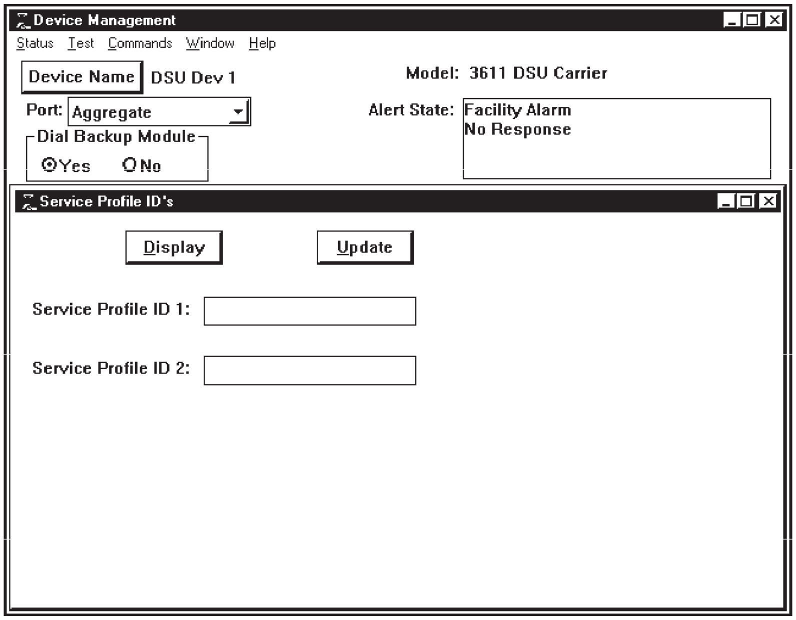
Enter up to two local ISDN telephone numbers in one of the following ways:

- Type the desired number in either the **First Phone #** or **Second Phone #** field. Valid characters are **0–9**, *****, #, **^**, **%**, **+**, **-**, **|**, **a**, **space**, **comma**, **;**, **(**, **)**, **p**, **P**, **t**, **T**, **w**, **W**. Do not exceed 36 characters per telephone number.
- Use the Phone Book to select a number from the Network Phone Book. See Chapter 4, *Configuration*, for more information about the Phone Book. The first number selected will be placed in the **First Phone #** field. You can also click on the desired field name first, either First Phone # or Second Phone #, and then click on a telephone number in the Phone Book list.

Choose Update to send the telephone numbers to the device.

Service Profile ID's

Choose Service Profile ID's from the Commands pull-down menu to display and update the ISDN service profile IDs. You can enter up to two IDs per device, with a maximum of 20 digits per ID. When you choose Service Profile ID's, the Service Profile ID's window appears.



Device Name: DSU Dev 1

Model: 3611 DSU Carrier

Port: Aggregate

Dial Backup Module: ● Yes ○ No

Alert State: Facility Alarm
No Response

Choose Display to read the Service Profile ID's from the device.

Enter an ID (maximum 20 digits) in the **Service Profile ID 1** or **Service Profile ID 2** field, or type a space in the first position of one of the fields to delete an existing ID. Choose Update to send your entry to the device.

Reset Device

Choose Reset Device from the Commands pull-down menu to perform a soft reset of the device.

Reset Call Counter

Choose Reset Call Counter from the Commands pull-down menu to clear a 3900 Series device's dial backup counter. A 3900 Series device will attempt a dial backup a maximum of 10 times. No more attempts can be made until the dial backup counter is cleared.

In addition to using the Reset Call Counter command, the dial backup counter can be cleared via a dial command, or by performing a reset before issuing another dial command.

Print

Choose Print from the Commands menu to print the current Device Management window and all windows opened from it. See *Setting Up the System Printer* in Chapter 4, *Configuration*, for additional information on using printers.

Window

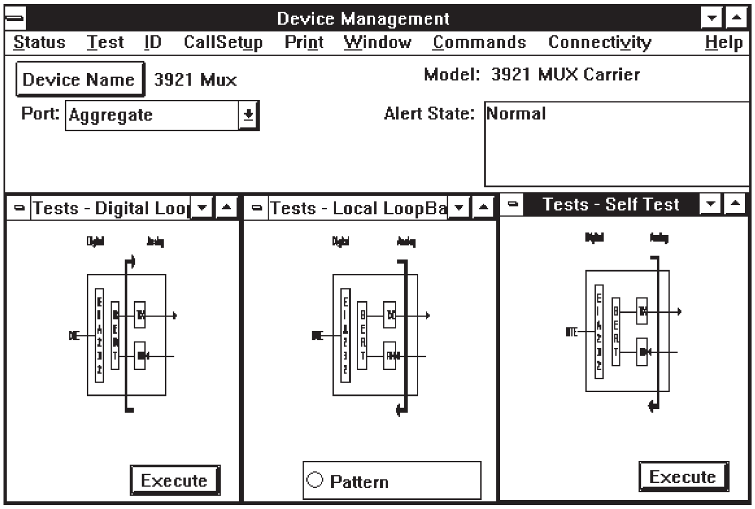
Choose Window from the Device Management menu to change how the Device Management windows appear or to close all the open Device Management windows. Choosing Window causes a drop-down menu to display listing the commands **Tile**, **Cascade**, **Arrange Icon**, and **Close All**.

The **Window** commands only affect the windows or icons opened from the same Device Management window. If two or more Device Management windows are open, the **Window** commands only operate on the windows opened from the current Device Management window.

The windows opened from the current Device Management window are listed below the last command. A check mark indicates the active window. To change the active window, select the window name from the list.

Tile

Choose Tile from the pull-down menu to have the windows arranged in a side-by-side manner. This allows viewing of several windows simultaneously (side-by-side) with the disadvantage that each window is smaller than if they were displayed on top of each other. The following example shows three Device Management windows displayed in the tile fashion.



Device Name 3921 Mux

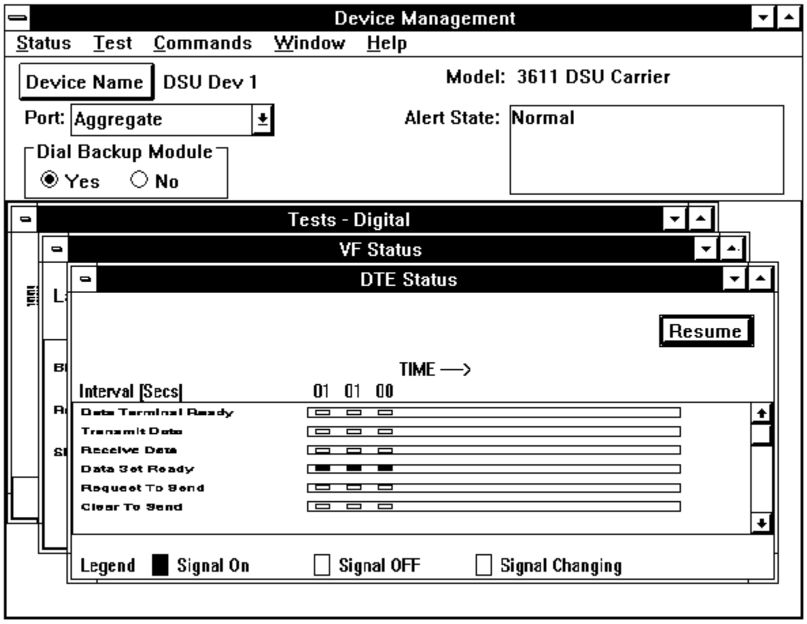
Model: 3921 MUX Carrier

Port: Aggregate

Alert State: Normal

Cascade

Choose Cascade from the pull-down menu to have windows arranged in a stacked fashion while allowing the upper and left side of each window to remain in view. This permits viewing of the primary window, in a larger size than Tile, and makes changing from one window to another easier than if they were displayed directly on top of each other. The following example shows three Device Management windows displayed in the cascade fashion.



Device Name DSU Dev 1

Model: 3611 DSU Carrier

Port: Aggregate

Alert State: Normal

Dial Backup Module ● Yes ○ No

Arrange Icons

Choose Arrange Icons from the pull-down menu to display any icons along the lower portion of the window.

Close All

Choose Close All from the pull-down menu to close all the windows called from the current Device Management menu.

Dial Function

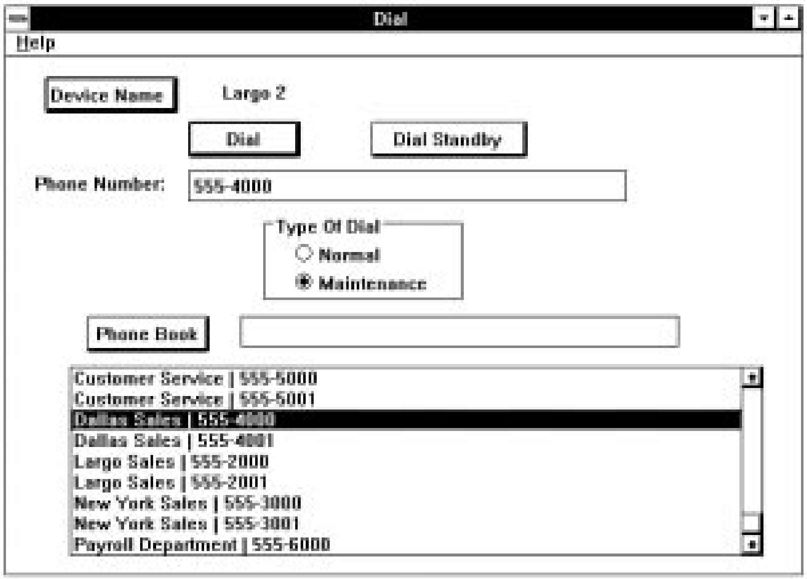
8

Dial Function Overview

This chapter describes how to use the Dial function to connect a local device to a remote device. This function is also available through the **CallSetup** command on the Commands pull-down menu from the Device Management menu bar.

When you use Call Setup through Device Management, you have already selected a local device. If you choose Dial from the Commands pull-down menu or via the Dial icon in the toolbar, you must first select a local device.

The following example shows the Dial window for 2400 Series, 3800 Series and 3900 Series analog-type devices.



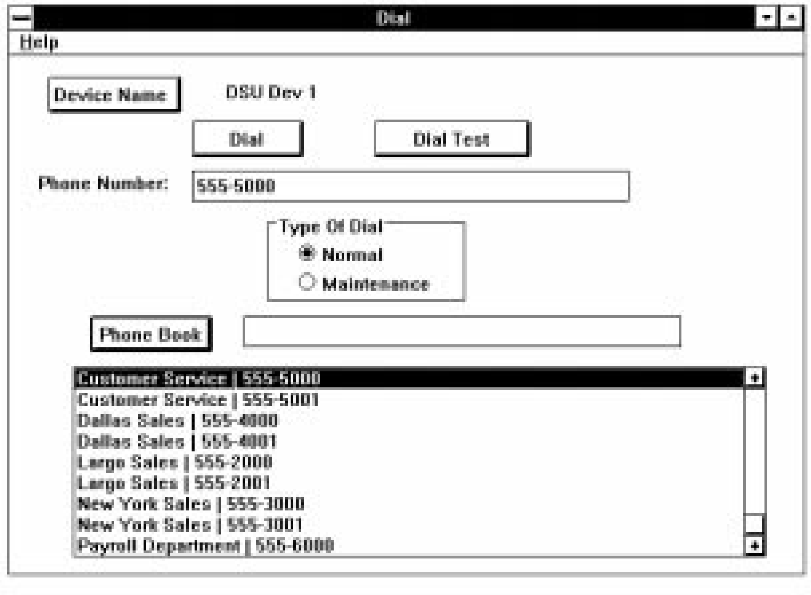
Device Name: Largo 2

Phone Number: 555-4000

Type Of Dial
○ Normal
● Maintenance

Customer Service | 555-5000
Customer Service | 555-5001
Dallas Sales | 555-4000
Dallas Sales | 555-4001
Largo Sales | 555-2000
Largo Sales | 555-2001
New York Sales | 555-3000
New York Sales | 555-3001
Payroll Department | 555-6000

The following example shows the Dial window for 3600 Series digital-type devices.



DSU Dev 1

Phone Number: 555-5000

Type Of Dial
● Normal
○ Maintenance

Customer Service | 555-5000
Customer Service | 555-5001
Dallas Sales | 555-4000
Dallas Sales | 555-4001
Largo Sales | 555-2000
Largo Sales | 555-2001
New York Sales | 555-3000
New York Sales | 555-3001
Payroll Department | 555-6000

Selecting a Local Device

Once you access Dial from the Commands pull-down menu or with the Dial icon, use the Device Name button to select a local device or use a device from a previous selection. The Device Name button gives you access to the Selection Browser. Refer to *Device Selection* in Appendix A, *NMS Windows Conventions*, for additional information on using the Selection Browser.

NOTE:

If you are calling a remote site, either place a maintenance call or select the remote device as the calling device. If you select a local device for a normal call, no NMS functions can be performed on the remote device.

Setting Up a Call

Before making a remote connection, type a telephone number into the **Phone Number** field, or choose Phone Book to access the **Phone Book** box to get the number. See *Configuring a Device Phone Directory* in Chapter 4, *Configuration,* for additional information about the Phone Book.

Once you enter a telephone number, the Dial button is enabled. Before choosing Dial, ensure that the correct phone number is selected.

Within the **Type Of Dial** box, select either the Normal or Maintenance option button for devices other than DSUs. DSUs do not support a maintenance call. For all other devices, use Maintenance for a direct connection between NMS and the device, bypassing the DTE.

Using the Maintenance connection causes NMS to use the device's primary channel for diagnostic purposes. This enables higher data transfer rates as may be required to download firmware or options to a remote device.

To place the call, choose Dial. If the remote device does not answer, a dialog box appears indicating the cause of the problem. Once the connection is made, **Dial** changes to **Disconnect**. Choose Disconnect to cause the local device to hang up.

If you select a remote dial device, a list box of all the available local devices appears. If you do not make a selection from the list box, a dialog box will appear with a warning to select a local device to place the call. If Cancel is selected, the Dial button is disabled until another device is selected.

Once the call is connected, the **Dial** changes to **Training** until the remote device is logically connected. **Training** then changes to **Disconnect**. If you close the dial window before a logical connection is established, you will receive a warning that the device is not connected. If you close the window, the device will be disconnected.

If the device is on a leased line, you can choose Dial Test to have the DBM place the call. However, once the call is established, no further actions are performed. The call is treated as a normal call.

If the device is a 2400 or 3800 Series leased-line model operating in the Lease mode, or a DSU and a dial connection is made using the Dial button, the Dial Standby button is enabled. To switch the device from dial to leased line, choose Return to Lease.

If the device is a DSU and a dial connection is made using the Dial button, the Dial Standby button appears in place of the Dial Test button. The **Dial Standby** button changes to **Return To Dial**. To switch the device back to the DDS facility and maintain the DDD connection, choose Return to Dial.

To return a 3800 Series device to the dial line, choose Return To Dial. Disconnecting the device (choose Disconnect) causes it to automatically return to the lease line.

To return a DSU to the dial line, choose Return To Dial. Disconnecting the device (choose Disconnect) causes the device to be switched from a DDD to a DDS facility.

Firmware Download

9

Firmware Download

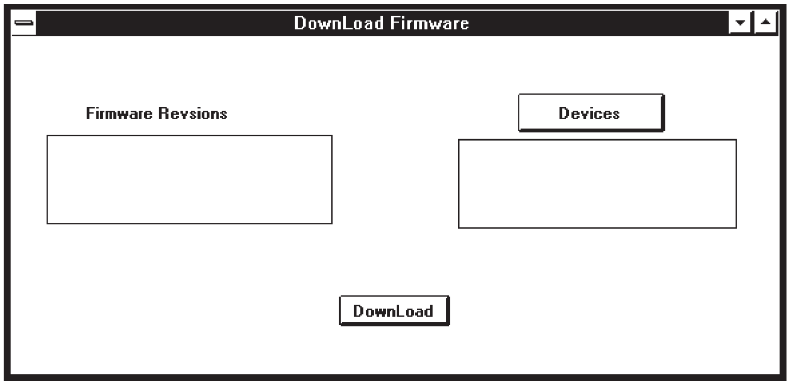
The 6700 Series NMS gives you the capability of downloading firmware updates directly from your PC. This chapter provides procedures for downloading firmware updates to devices from the PC.

The ADp Download Firmware feature is available for COMSPHERE 3800 and 3900 Series devices. This feature allows you to download firmware updates to these devices directly from the 6700 Series NMS on your PC.

All the selected local devices are downloaded first (via broadcast). The remote devices are downloaded by their controlling devices. Multiple local devices can download to their remote devices simultaneously, but a single control device can only download to one remote device at a time.

▶ Procedure

1. Select the Download Firmware icon in the toolbar. The Download Firmware window appears.



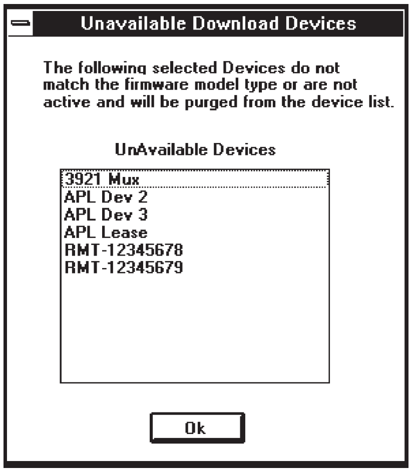
The Firmware Revisions list box displays all available firmware revisions you have stored in a special Firmware directory.

2. Select the desired firmware revision from the Firmware Revisions list box.

3. To select the device(s) for the firmware download, use the Devices button to access the Selection Browser and create a new list. Only devices of the same model type of the selected firmware revision appear in the device list box. See *Device Selection* in Appendix A, *NMS Windows Conventions*, for additional information on using the Selection Browser.

   All devices displayed within the Device list box will be downloaded.

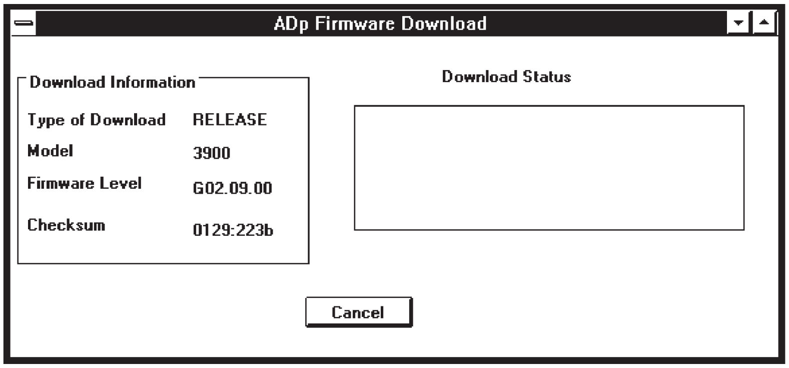
4. If a device does not qualify for downloading, the Unavailable Download Devices dialog box appears, showing all unavailable devices to be purged from the list.



The following selected Devices do not match the firmware model type or are not active and will be purged from the device list.

3921 Mux
APL Dev 2
APL Dev 3
APL Lease
RMT-12345678
RMT-12345679

Once you have made the appropriate device selections, click on the Download button. The ADp Firmware Download window appears.



Type of Download	RELEASE
Model	3900
Firmware Level	G02.09.00
Checksum	0129:223b

The ADp firmware download process can last up to four hours. You can iconify the ADp Firmware Download window, and it will blink when the download is finished. The download can be aborted in progress by using the **Cancel** button. However, if you cancel a download before the process completes, all device(s) use the firmware version installed prior to the download attempt.

The fields on the ADp Firmware Download window are:

- **Download Information:** Contains data about the current download: Type of Download, Model, Firmware Level, and Checksum.
- **Download Status:** Contains status information about the current download.

Reports

10

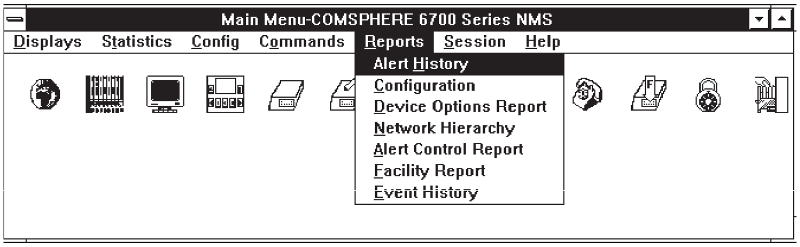
Reports Menu

This chapter explains how to generate the NMS reports using the **Reports** commands. You can generate reports, either online or printed, that describe the network configuration, alert information, and the options listed in the user files.

Access the Reports menu from the Main Menu. The Reports pull-down menu lists the commands:

- **Alert History**
- **Configuration**
- **Device Options Report**
- **Network Hierarchy**
- **Alert Control Report**
- **Facility Report**

  Event History is described in the *COMSPHERE 6700 Series Network Management System, Security Manager Feature Supplement*.



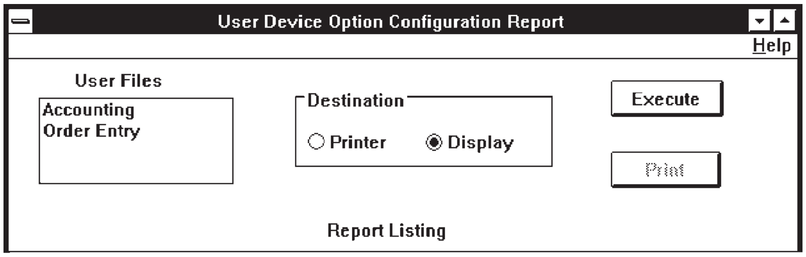
Generating a Report

You can view all reports online or print them on the selected printer. You can print any online reports without leaving the current window. Use this method to verify information before creating a hard copy.

To display a report online and optionally print it:

▶ Procedure

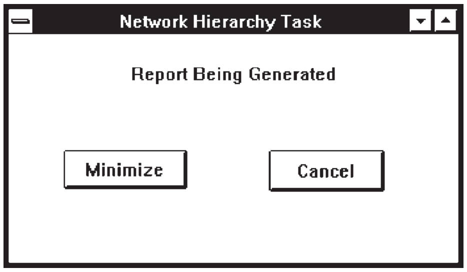
1. Choose a report from the Reports pull-down menu.
2. Set all the required choices. Refer to the individual report sections in this chapter for a detailed requirements description.
3. Select Display from within the **Destination** box. Each of the Reports windows has a **Destination** box.



User Files
Accounting
Order Entry

Destination
○ Printer ● Display

4. Choose Execute. The Execute button changes to Running (gray) and a dialog box appears with the message **Report Being Generated**.

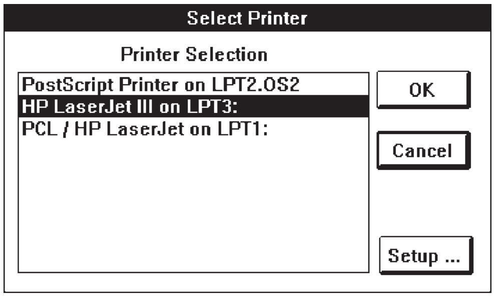


Report Being Generated

To perform other tasks while the report is generating, choose Minimize within the dialog box. The dialog box becomes an icon placed along the bottom of the screen. When the report is ready, the icon flashes. Restore the icon to view the report.

5. After being created, the report appears in the lower section of the window. The Execute and Print buttons become active. To print the report, choose Print. The Print button becomes inactive (gray).

   If NMS is configured to use the Select Printer dialog box for report output, the Select Printer dialog box appears. Select one of the printers in the Printer Selection list and choose OK. See *Setting Up the System Printer* in Chapter 4, *Configuration,* for additional information on printers.



PostScript Printer on LPT2.OS2
HP LaserJet III on LPT3:
PCL / HP LaserJet on LPT1:

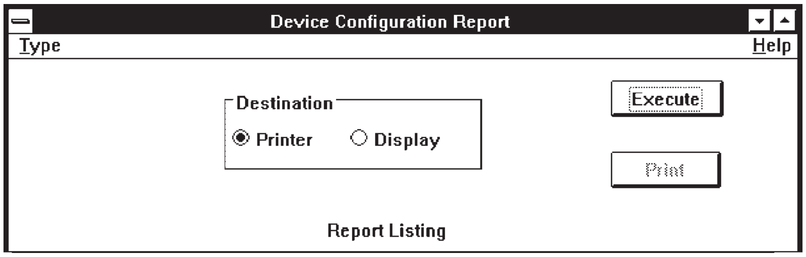
While the report is printing, the NMS Print Task dialog box appears showing the window title and report name.

Printing Reports

You can print a report on the NMS selected printer without first displaying it online.

▶ Procedure

1. Choose a report from the Reports pull-down menu.
2. Set all the required choices. Refer to the individual report sections in this chapter for a detailed requirements description.
3. Select Printer from within the **Destination** box.



Destination
● Printer ○ Display

4. Choose Execute and the following events occur:
   - — The Execute button changes to Running (gray).
   - — A dialog box appears with the message **Report Being Generated**.
   - — The Execute button becomes active after the report is created.
   - — The report starts printing. While the report is printing, the NMS Print Task dialog box displays showing the window title and report name.

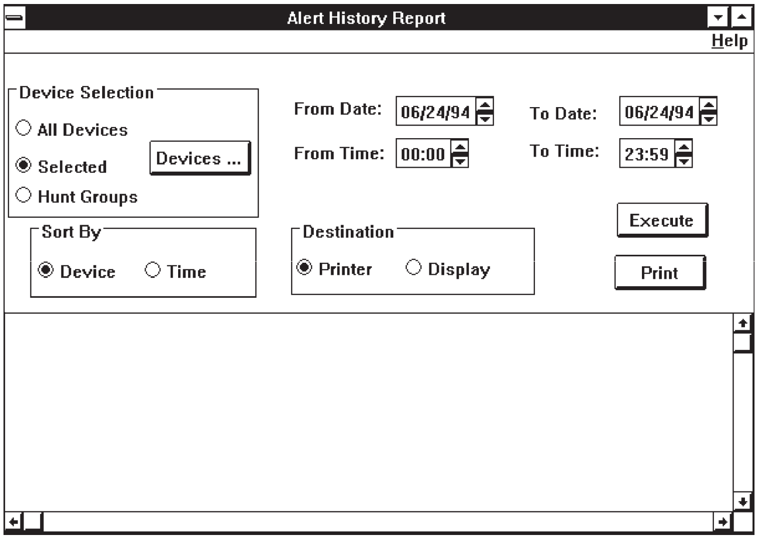
The date, time, customer name, page number, and report title appear on the top of all reports.

Alert History

Use **Alert History** to create a report listing all the alerts that occurred during a selected period of time. The Alert History Report is sorted by either device name or the time the alerts occurred.

▶ Procedure

1. Select Alert History from the Reports pull-down menu. The Alert History Report window appears.



Device Selection
○ All Devices
● Selected
○ Hunt Groups

From Date: 06/24/94
To Date: 06/24/94
From Time: 00:00
To Time: 23:59

Sort By
● Device ○ Time

Destination
● Printer ○ Display

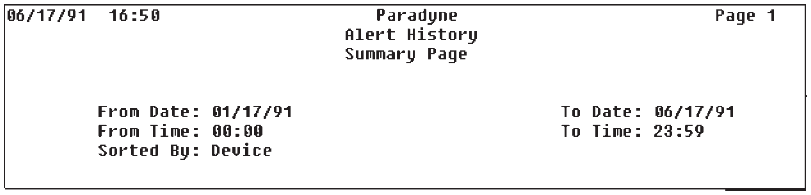
2. Select the devices to include in the report (all or selected devices).
   - — If the report is to include all devices, select All Devices in the Device Selection box.
   - — If the report is to include only selected devices, select Selected in the Device Selection box. Choose Devices... and the Device Selection dialog box appears.
   - — If the report is to include hunt groups, select Hunt Groups in the Device Selection box. The Hunt Group list box appears. Select the desired hunt group and choose OK. To select all hunt groups, choose OK.
3. Select the report period start date using the **From Date** scrolling date range field.
4. Select the report period start time using the **From Time** scrolling time range field.
5. Select the report period end date using the **To Date** scrolling date range field.
6. Select the report period end time using the **To Time** scrolling time range field.

   Refer to *Date Field* and *Time Field* in Appendix A, *NMS Windows Conventions*, for additional information.
7. Select how the report is to be sorted (by device or time alert occurred).
   - — If the report is to be sorted by device, select Device in the **Sort By** box.
   - — If the report is to be sorted by time, select Time in the **Sort By** box.
8. Select the report destination (display or printer).
   - — If the report is to be sent directly to the printer, select Printer in the **Destination** box.
   - — If the report is to be sent directly to the monitor, select Display in the **Destination** box.
9. Choose Execute.

See *Generating a Report* on page 10-2 for additional information.

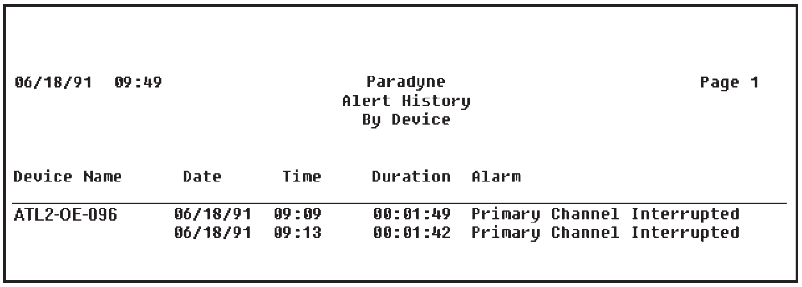
Depending on the destination selected, the Alert History Report either appears online or is printed on the selected printer.

The report is preceded by a summary page showing the times, dates, and sort method used for the Alert History Report.



```
06/17/91  16:50                   Paradyne                          Page 1
                               Alert History
                               Summary Page


          From Date: 01/17/91                           To Date: 06/17/91
          From Time: 00:00                              To Time: 23:59
          Sorted By: Device
```

The following example shows an Alert History Report sorted by device.

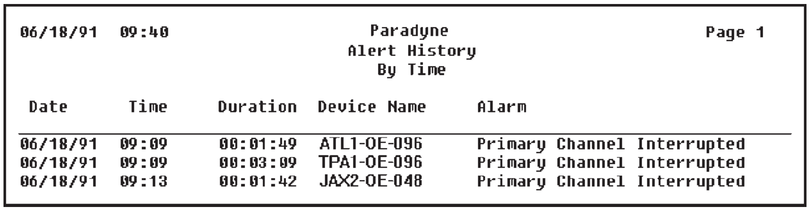


```
06/18/91  09:49                    Paradyne                     Page 1
                                 Alert History
                                   By Device

Device Name      Date      Time      Duration  Alarm
______________________________________________________________________
ATL2-OE-096     06/18/91  09:09      00:01:49  Primary Channel Interrupted
                06/18/91  09:13      00:01:42  Primary Channel Interrupted
```

The fields for an Alert History Report sorted by device are as follows:

- **Device Name:** The name of the device.
- **Date:** The date the alarm occurred.
- **Time:** The time the alarm occurred.
- **Duration:** The length of the alarm in the HH:MM:SS format.
- **Alarm:** The alarm type.

The following example shows an Alert History Report sorted by time.



```
06/18/91  09:40                    Paradyne                     Page 1
                                 Alert History
                                    By Time

 Date      Time     Duration  Device Name     Alarm
______________________________________________________________________
06/18/91  09:09     00:01:49  ATL1-OE-096     Primary Channel Interrupted
06/18/91  09:09     00:03:09  TPA1-OE-096     Primary Channel Interrupted
06/18/91  09:13     00:01:42  JAX2-OE-048     Primary Channel Interrupted
```

The fields for an Alert History Report sorted by time are as follows:

- **Date:** The date the alarm occurred.
- **Time:** The time the alarm occurred.
- **Duration:** The length of the alarm in the HH:MM:SS format.
- **Device Name:** The name of the device.
- **Alarm:** The alarm type.

Configuration

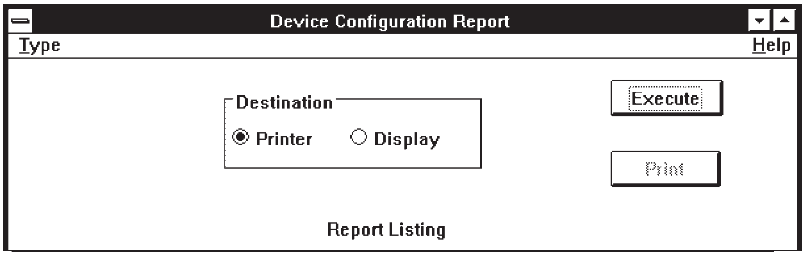
Use Configuration to create a report listing the current NMS configuration records. The three basic types of configurations are **Contacts**, **Devices**, and **Device Groups**.

Contacts

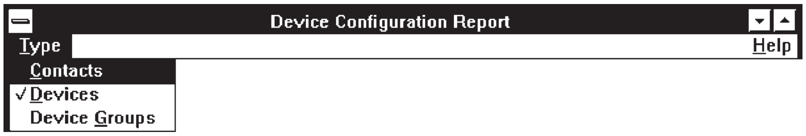
Use the **Contacts** command to generate a report of all the network contacts configured in NMS. See *Configuring Network Elements* in Chapter 4, *Configuration*.

▶ Procedure

1. Select Configuration from the Reports pull-down menu. The Device Configuration Report window appears.



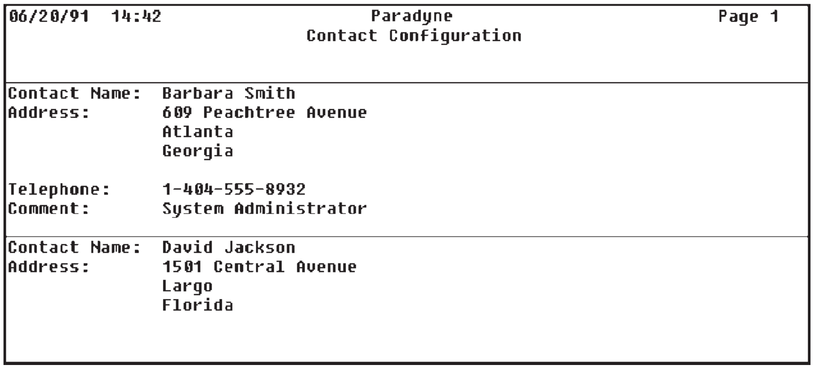
2. Select Type from the Device Configuration Report menu bar. The Type pull-down menu appears.



3. Choose Contacts from the Type pull-down menu. The Contact Configuration Report window appears. This window is identical to the Device Configuration window except for the title bar.
4. Select the report destination, either to the monitor or the printer.
   - — If the report is to be sent directly to the printer, select Printer in the **Destination** box.
   - — If the report is to be sent directly to the monitor, select Display in the **Destination** box.
   - — Choose Execute.

See *Generating a Report* on page 10-2 for additional information.

Depending on the destination selected, the Contact Configuration Report either appears online or is printed on the selected printer. Contained in the report are the Contact Name, Telephone (number), Address, and Comments.



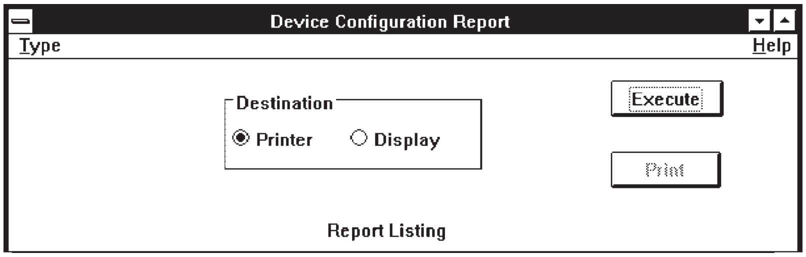
```
06/20/91   14:42                      Paradyne                                 Page  1
                                 Contact Configuration

Contact Name:  Barbara Smith
Address:       609 Peachtree Avenue
               Atlanta
               Georgia

Telephone:     1-404-555-8932
Comment:       System Administrator

Contact Name:  David Jackson
Address:       1501 Central Avenue
               Largo
               Florida
```

Devices

Use the **Devices** command to generate a report of all the devices, carriers, cabinets, and sites configured within the network. The fields on the report differ, depending on the type of device selected. See *Configuring Network Elements* in Chapter 4, *Configuration*.

Procedure

1. Select Configuration from the Reports pull-down menu. The Device Configuration Report window appears.

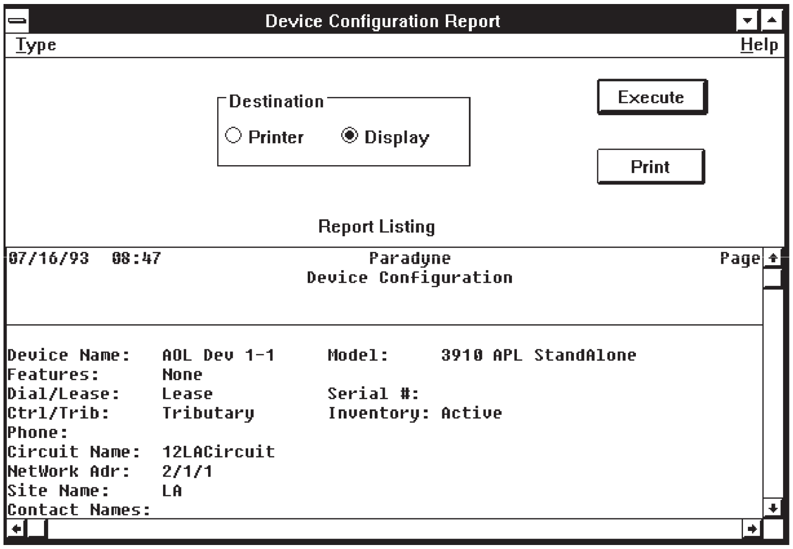


Destination: ● Printer ○ Display

2. Select the report destination (monitor or printer).
   - — If the report is to be sent directly to the printer, select Printer in the **Destination** box.
   - — If the report is to be sent directly to the monitor, select Display in the **Destination** box.
3. Choose Execute.

Depending on the destination selected, the Device Configuration Report either appears online or is printed on the selected printer. The report is printed in sections by devices, carriers, cabinets, and site.

Only the information valid for a particular device is displayed. See *Configuring Network Elements* in Chapter 4, *Configuration*, for additional information.



Destination
○ Printer ● Display

```
07/16/93   08:47                 Paradyne                          Page
                            Device Configuration

Device Name:   AOL Dev 1-1     Model:     3910 APL StandAlone
Features:      None
Dial/Lease:    Lease           Serial #:
Ctrl/Trib:     Tributary       Inventory: Active
Phone:
Circuit Name:  12LACircuit
NetWork Adr:   2/1/1
Site Name:     LA
Contact Names:
```

The fields for the device section of the Device Configuration Report include some of the following, depending on the device type selected:

- **Device Name:** The device's name.
- **Model:** The device's model number.
- **Features:** Any additional device features, for example, TDM.
- **Dial/Lease:** The device's configuration, either Dial or Leased-line mode.
- **Serial #:** The device's serial number.
- **Ctrl/Trib:** Valid entries are the following:
  - — **Control** indicating the devices can issue tests and commands to other devices on the same circuit in the network.
  - — **Tributary** indicating the device receives control data from a control device and NMS.
  - — **Extended Control** indicating the device is a tributary that performs control-type functions.
- **Inventory:** The device's current status. Valid entries are the following:
  - — **Active** indicating installed and in use.
  - — **Inactive** indicating installed and not in use.
  - — **Inventory** indicating not installed.
- **Phone:** The device's telephone number.
- **Circuit Name:** The name of the circuit that the device is on.

- **NetWork Adr:** The device's network address. The field format is as follows:

  Control Device – Format: **c/l** Example: 1/2

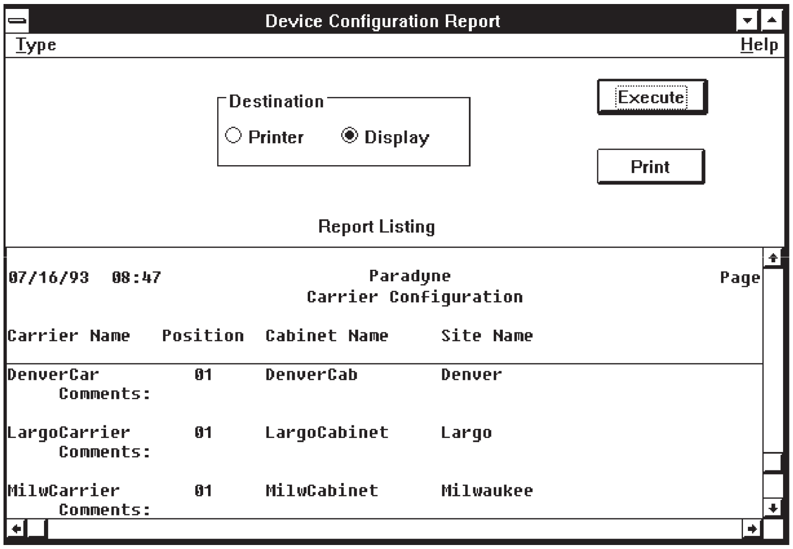
  where: **c** = 1 (the device's control channel)
  l = a local control device address between 1 and 256.

  Tributary Device – Format: **c/l/t** Example: 1/2/1

  where: **c** = 1 (the device's control channel)
  l = a local control device address between 1 and 256.
  t = 1 (tributary address)

- **Carrier Name:** The carrier's name where the device is installed.
- **Slot:** The slot number where the device is installed.
- **Cabinet Name:** The cabinet's name where the device is installed.
- **Site Name:** The site's name where the device is installed/located.
- **Contact Names:** The name of the persons to contact at the site.
- **Comments:** Any comments entered during configuration.

The following is an example of a carrier section on the Device Configuration Report:

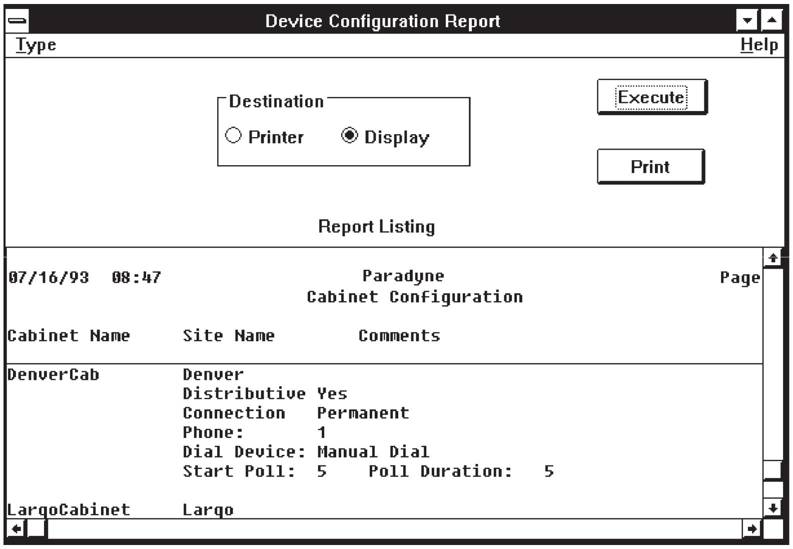


```
07/16/93  08:47                Paradyne                              Page
                          Carrier Configuration

Carrier Name   Position  Cabinet Name     Site Name

DenverCar         01     DenverCab        Denver
     Comments:

LargoCarrier      01     LargoCabinet     Largo
     Comments:

MilwCarrier       01     MilwCabinet      Milwaukee
     Comments:
```

The fields for the carrier section of the Device Configuration Report are described as follows.

- **Carrier Name:** The carrier's name.
- **Position:** The carrier's position number within the cabinet.
- **Cabinet Name:** The cabinet's name where the carrier is located.
- **Site Name:** The site's name where the carrier is located.
- **Comments:** Any comments entered during configuration.

The following is an example of a cabinet section on the Device Configuration Report:

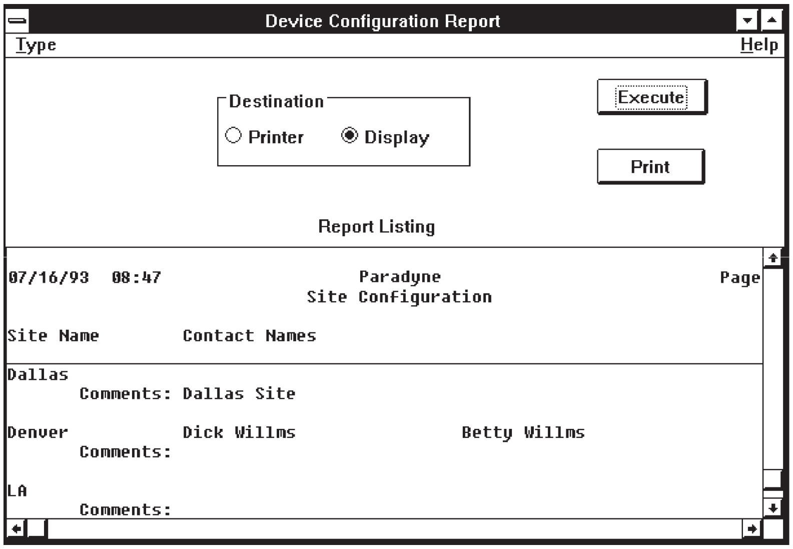


```
07/16/93  08:47                    Paradyne                          Page
                               Cabinet Configuration

Cabinet Name     Site Name        Comments

DenverCab        Denver
                 Distributive Yes
                 Connection   Permanent
                 Phone:       1
                 Dial Device: Manual Dial
                 Start Poll:  5    Poll Duration:   5

LargoCabinet     Largo
```

The fields for the cabinet section of the Device Configuration Report are described as follows.

- **Cabinet Name:** The name of the cabinet.
- **Site Name:** The name of the site where the cabinet is installed.
- **Comments:** Any comments entered during configuration.

The following is an example of a site section on the Device Configuration Report:



```
07/16/93  08:47                    Paradyne                          Page
                               Site Configuration

Site Name        Contact Names

Dallas
       Comments: Dallas Site

Denver           Dick Willms                Betty Willms
       Comments:

LA
       Comments:
```

The fields for the site section of the Device Configuration Report are described as follows.

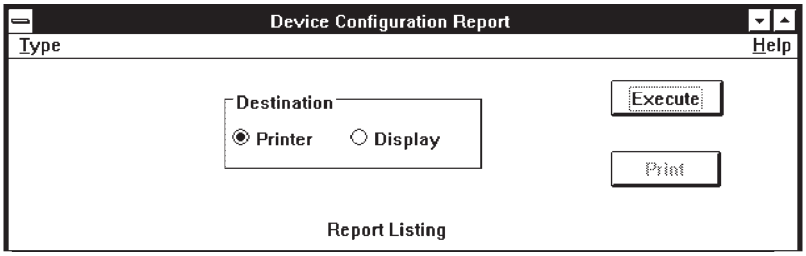
- **Site Name:** The name of the site.
- **Contact Names:** The name of the persons to contact at the site.
- **Comments:** Any comments entered during configuration.

Device Groups

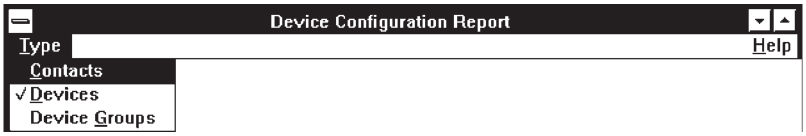
Use the **Device Groups** command to generate a report of all the device groups configured in NMS. See *Configuring Network Elements* in Chapter 4, *Configuration*.

▶ Procedure

1. Select Configuration from the Reports pull-down menu. The Device Configuration Report window appears.



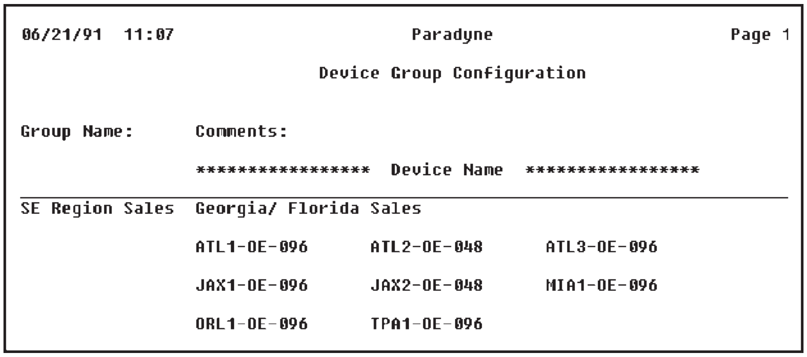
2. Select Type from the Device Configuration Report menu bar. The Type pull-down menu appears.



3. Choose Device Groups from the Type pull-down menu. The Contact Configuration Report window appears. This window is identical to the Device Configuration window except for the title bar.
4. Select the report destination (monitor or printer).
   - — If the report is to be sent directly to the printer, select Printer in the **Destination** box.
   - — If the report is to be sent directly to the monitor, select Display in the **Destination** box.
5. Choose Execute.

See *Generating a Report* on page 10-2 for additional information.

Depending on the destination selected, the Device Group Configuration Report either appears online or is printed on the selected printer. Contained in the report are the group name, comments, and the device names associated with the group.



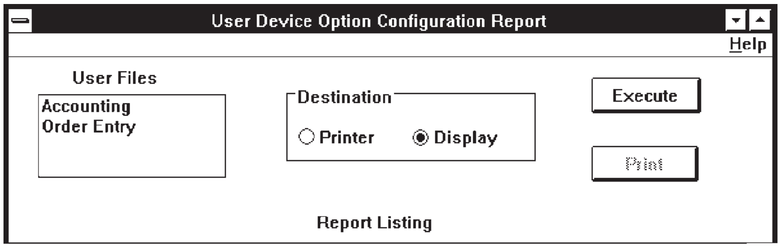
```
06/21/91  11:07                      Paradyne                          Page 1

                              Device Group Configuration

Group Name:       Comments:

                  *****************  Device Name  *****************
--------------------------------------------------------------------------
SE Region Sales   Georgia/ Florida Sales

                  ATL1-OE-096       ATL2-OE-048       ATL3-OE-096

                  JAX1-OE-096       JAX2-OE-048       MIA1-OE-096

                  ORL1-OE-096       TPA1-OE-096
```

Device Options Report

Use Device Options to create a report listing the device options recorded in user-created device option files.

▶ Procedure

1. Select Device Options Report from the Reports pull-down menu. The User Device Option Configuration Report window appears.



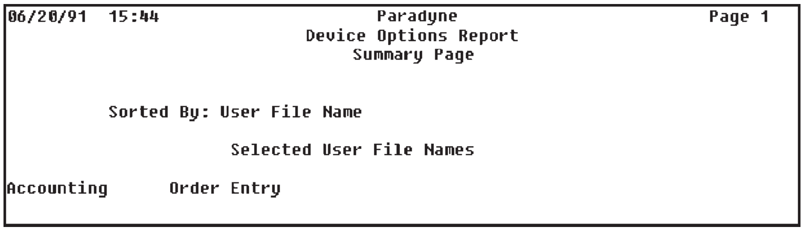
User Files
Accounting
Order Entry

Destination
○ Printer ● Display

2. Select the files to be included in the report from within the **User Files** list box. If no files are selected, all the listed files are included in the report. See *Configuring Device Options* in Chapter 4, *Configuration*, for information on creating or modifying the Device Option files.
3. Select the report destination (monitor or printer).
   - — If the report is to be sent directly to the printer, select Printer in the **Destination** box.
   - — If the report is to be sent directly to the monitor, select Display in the **Destination** box.
4. Choose Execute.

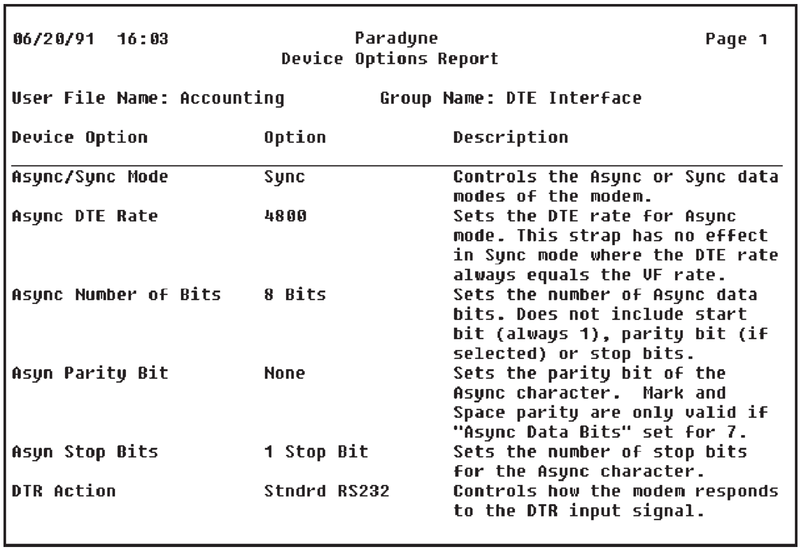
See the *Generating a Report* on page 10-2 for additional information.

Depending on the destination selected, the User Device Option Report either appears online or is printed on the selected printer. A summary page precedes the report indicating the sorting option used and the user files included.



```
06/20/91  15:44                     Paradyne                        Page 1
                             Device Options Report
                                  Summary Page


          Sorted By: User File Name

                      Selected User File Names

Accounting      Order Entry
```

Following the summary page is the Device Option Report.



```
06/20/91  16:03                   Paradyne                          Page 1
                          Device Options Report

User File Name: Accounting          Group Name: DTE Interface

Device Option            Option             Description
--------------------------------------------------------------------------
Async/Sync Mode          Sync               Controls the Async or Sync data
                                            modes of the modem.
Async DTE Rate           4800               Sets the DTE rate for Async
                                            mode. This strap has no effect
                                            in Sync mode where the DTE rate
                                            always equals the VF rate.
Async Number of Bits     8 Bits             Sets the number of Async data
                                            bits. Does not include start
                                            bit (always 1), parity bit (if
                                            selected) or stop bits.
Asyn Parity Bit          None               Sets the parity bit of the
                                            Async character.  Mark and
                                            Space parity are only valid if
                                            "Async Data Bits" set for 7.
Asyn Stop Bits           1 Stop Bit         Sets the number of stop bits
                                            for the Async character.
DTR Action               Stndrd RS232       Controls how the modem responds
                                            to the DTR input signal.
```

For each **User File Name** and **Area Name** the report indicates the following:

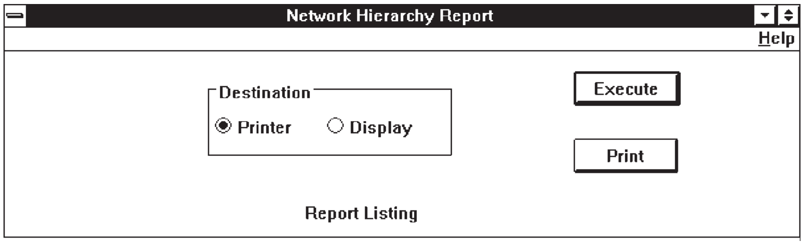
- **Device Option:** The NMS stored device configuration options.
- **Option:** The user-specified setting as defined in the User File. See *Configuring Device Options* in Chapter 4, *Configuration*, for additional information.
- **Description:** The NMS supplied description of the device option.

Network Hierarchy

Use **Network Hierarchy** to create a report listing all the devices organized by site, cabinet, carrier, or standalone device.

▶ Procedure

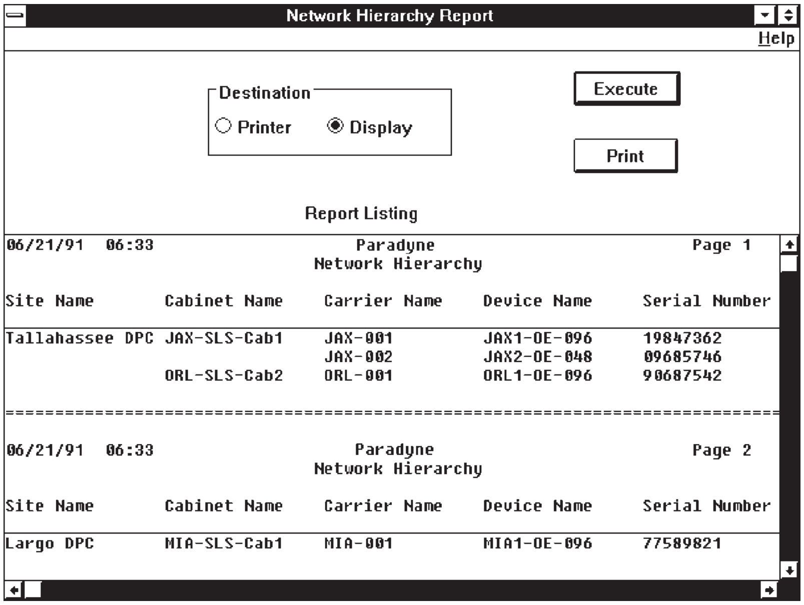
1. Select Network Hierarchy from the Reports pull-down menu. The Network Hierarchy Report window appears.



2. Select the report destination (monitor or printer).
   - — If the report is to be sent directly to the printer, select Printer in the **Destination** box.
   - — If the report is to be sent directly to the monitor, select Display in the **Destination** box.
   - — Choose Execute.

See *Generating a Report* on page 10-2 for additional information.

Depending on the destination selected, the Network Hierarchy Report either appears online or is printed on the selected printer. The following example shows a Network Hierarchy Report online.



```
06/21/91  06:33                    Paradyne                          Page 1
                               Network Hierarchy

Site Name       Cabinet Name    Carrier Name    Device Name     Serial Number

Tallahassee DPC JAX-SLS-Cab1    JAX-001         JAX1-OE-096     19847362
                                JAX-002         JAX2-OE-048     09685746
                ORL-SLS-Cab2    ORL-001         ORL1-OE-096     90687542

==============================================================================

06/21/91  06:33                    Paradyne                          Page 2
                               Network Hierarchy

Site Name       Cabinet Name    Carrier Name    Device Name     Serial Number

Largo DPC       MIA-SLS-Cab1    MIA-001         MIA1-OE-096     77589821
```

The fields for the Network Hierarchy Report are as follows:

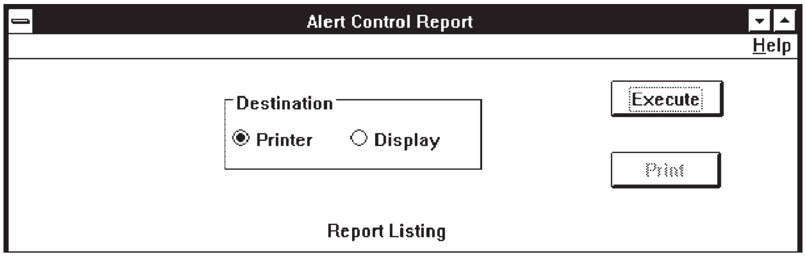
- **Site Name:** The site's name where the device is installed/located.
- **Cabinet Name:** The cabinet's name where the device is installed.
- **Carrier Name:** The carrier's name where the device is installed.
- **Device Name:** The device's name.
- **Serial Number:** The device's serial number.
- **Model:** The device's model number.

Alert Control Report

Use **Alert Control Report** to create a report listing all the current alert priorities and duration filters configured in NMS. See *Configuring Network Alerts and Events* in Chapter 4, *Configuration*, for additional information.

▶ Procedure

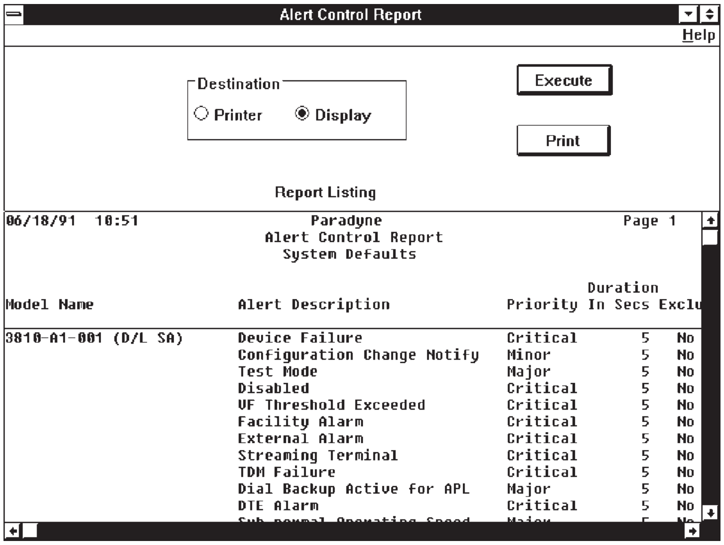
1. Select Alert Control from the Reports pull-down menu. The Alert Control Report window appears.



2. Select the report destination (monitor or printer).
   — If the report is to be sent directly to the printer, select Printer in the **Destination** box.
   — If the report is to be sent directly to the monitor, select Display in the **Destination** box.
3. Choose Execute.

See *Generating a Report* on page 10-2 for additional information.

Depending on the destination selected, the Alert Control Report either appears online or is printed on the selected printer.



```
06/18/91   10:51                Paradyne                          Page 1
                           Alert Control Report
                             System Defaults

                                                           Duration
Model Name                 Alert Description          Priority In Secs Exclu

3810-A1-001 (D/L SA)       Device Failure             Critical       5   No
                           Configuration Change Notify Minor         5   No
                           Test Mode                  Major          5   No
                           Disabled                   Critical       5   No
                           VF Threshold Exceeded      Critical       5   No
                           Facility Alarm             Critical       5   No
                           External Alarm             Critical       5   No
                           Streaming Terminal         Critical       5   No
                           TDM Failure                Critical       5   No
                           Dial Backup Active for APL Major          5   No
                           DTE Alarm                  Critical       5   No
```

The fields for the Alert Control Report are as follows:

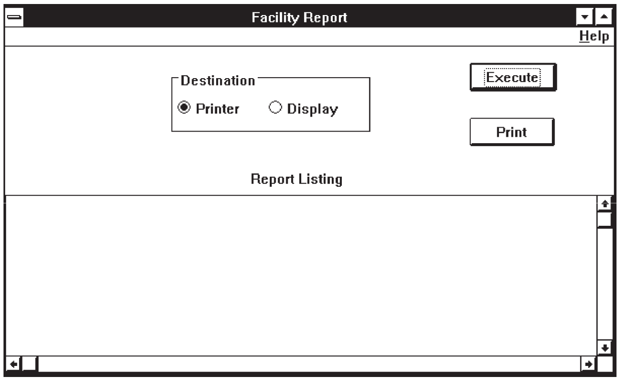
- **Circuit Name:** The name of the circuit that the device is on.
- **Model Name:** This field shows the device's model name.
- **Alert Description:** This field shows the NMS description of the alert.
- **Priority:** This field shows the alert's priority, either **Critical**, **Major**, or **Minor**.
- **Duration In Seconds:** This field shows the length of time the condition must exist before being reported as an alert by NMS.
- **Exclude:** This field shows if the alert is reported (**No**) or not reported (**Yes**) by NMS.

Facility Report

Use **Facility Report** to create a list of all network facilities entered into the database.

▶ Procedure

1. Select Facility Report from the Reports pull-down menu. The Facility Report window appears.



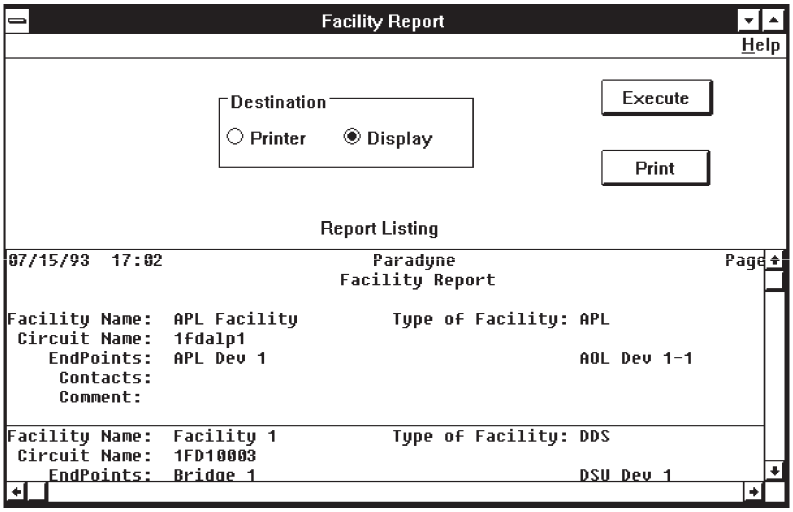
2. Select the report destination (monitor or printer).

   — If the report is to be sent directly to the printer, select Printer in the **Destination** box.

   — If the report is to be sent directly to the monitor, select Display in the **Destination** box.

3. Choose Execute.

   Depending on the destination selected, the Facility Report either appears online or is printed on the selected printer.



```
07/15/93  17:02                    Paradyne                          Page
                                Facility Report

Facility Name:  APL Facility         Type of Facility: APL
 Circuit Name:  1fdalp1
    EndPoints:  APL Dev 1                              AOL Dev 1-1
     Contacts:
     Comment:

Facility Name:  Facility 1           Type of Facility: DDS
 Circuit Name:  1FD10003
    EndPoints:  Bridge 1                               DSU Dev 1
```

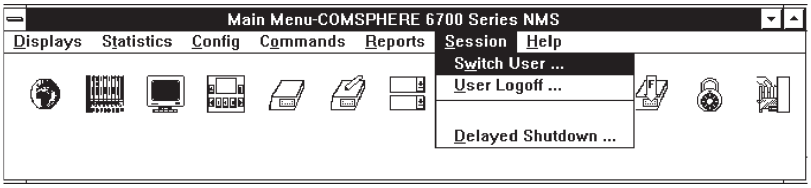
Session

11

Session Menu

This chapter explains how to access the Session menu and its commands. The Session commands enable switching between users without disturbing any open NMS application windows, closing of NMS application windows (logging off), and terminating NMS execution.

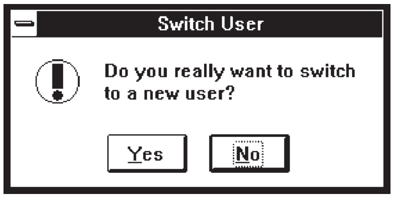
Access the Session menu through the Main Menu.



Switch User

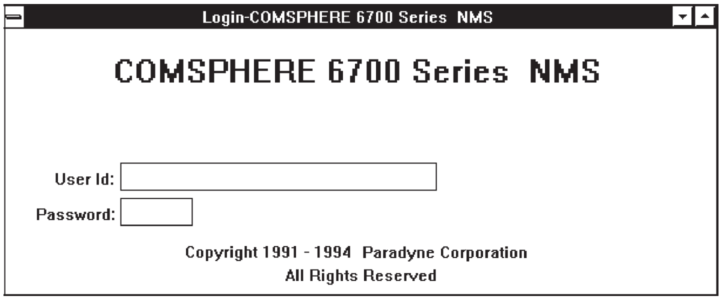
The **Switch User** command enables the next user to log into NMS, which automatically logs the current user off. This command facilitates shift changes without interrupting any tasks in progress.

To switch users, choose Switch User from the Session pull-down menu. A dialog box appears asking you to confirm the switch.



Do you really want to switch to a new user?

Choose Yes or No. If you choose Yes, the Login Window appears.



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If you choose No, the Login Window is not displayed, and the existing user remains as the current user. All currently open application windows remain open.

See Chapter 3, *Start-Up*, for the login procedure. The new user's name must be entered before any window other than the Login window can be accessed. All currently open application windows remain open.

NOTE:

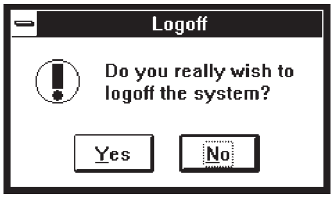
The process of logging in as the new user to NMS also logs the current user off. This means the new user's privilege level now takes effect for the current tasks.

Once the new user is successfully logged in to NMS, all active NMS tasks and windows are informed of the change in users.

User Logoff

The **User Logoff** command closes all open NMS application windows and displays the Login window.

To log off, choose User Logoff from the Session pull-down menu. A dialog box appears asking you to confirm that you intend to log off.



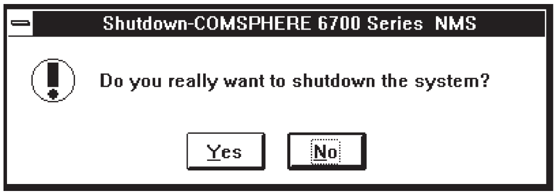
Do you really wish to logoff the system?

Choose Yes or No. If you choose Yes, the user is logged off and all open NMS application windows are closed. If you choose No, the user is not logged off.

Shutdown System

The **Shutdown System** command closes all active NMS tasks and windows and stops NMS from executing. This command performs the same function as closing the Main Menu window.

To shut down NMS, choose Shutdown System from the Session pull-down menu. A dialog box appears asking you to confirm the shutdown.



Do you really want to shutdown the system?

Choose Yes or No. If you choose Yes, NMS will shut down. If you choose No, NMS will not shut down and all currently open application windows remain open.

Delayed Shutdown

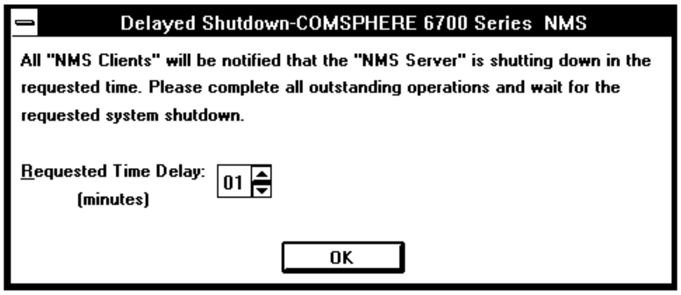
The **Delayed Shutdown** commands enables a Multiuser feature server to select a delay for system shutdown.

NOTE:

This command is active only for COMSPHERE 6700 Series NMS Multiuser feature servers.

▶ Procedure

1. Choose Delayed Shutdown from the Session pull-down menu. The Delayed Shutdown dialog box appears.



All "NMS Clients" will be notified that the "NMS Server" is shutting down in the requested time. Please complete all outstanding operations and wait for the requested system shutdown.

Requested Time Delay: 01
(minutes)

2. Select the desired delay using the scrolling range field (1–60 minutes).
3. Choose OK. The Multiuser feature clients will then be notified of the delayed shutdown.

Platform/Network Performance Monitor

12

What is the Performance Monitor?

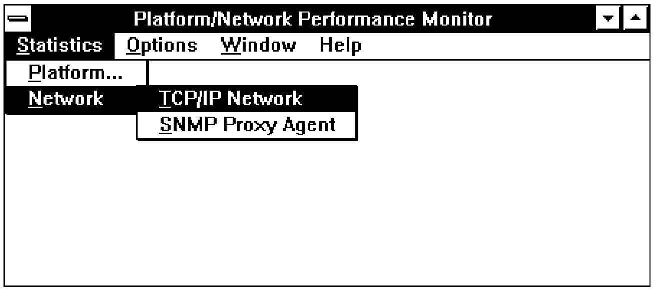
The Platform/Network Performance Monitor allows you to monitor any node's platform/network resources and performance statistics.

Accessing the Performance Monitor

Access the Performance Monitor by selecting the icon shown below in the COMSPHERE 6700 Series Program Group.

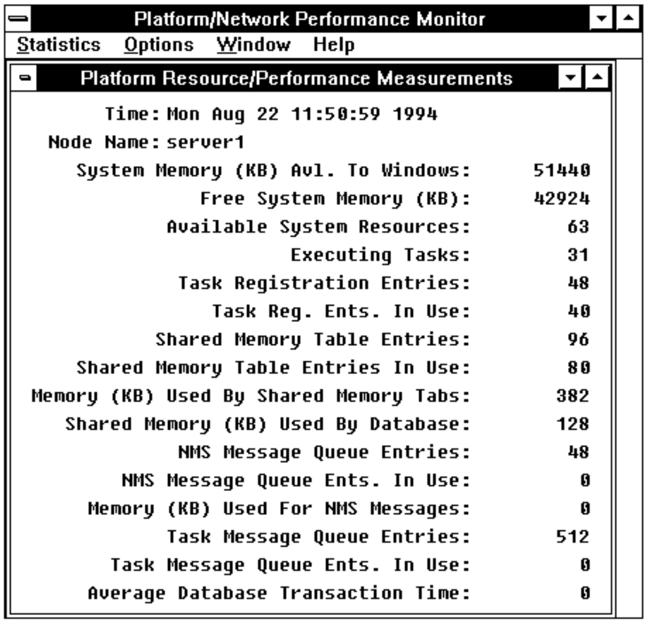
Performance
Monitor

After you select the icon, the Platform/Network Performance Monitor Main Menu appears. The commands available from the Main Menu are shown below.



Viewing Platform Resources and Performance Measurements

Use **Platform** to view platform resources and performance measurements. When you choose Platform from the Statistics pull-down menu, the Platform Resources/Performance Measurements window appears.


Platform/Network Performance Monitor
Statistics
Options
Window
Help
Platform Resource/Performance Measurements

```
         Time: Mon Aug 22 11:50:59 1994
    Node Name: server1
      System Memory (KB) Avl. To Windows:     51440
                 Free System Memory (KB):     42924
              Available System Resources:        63
                         Executing Tasks:        31
               Task Registration Entries:        48
                  Task Reg. Ents. In Use:        40
             Shared Memory Table Entries:        96
      Shared Memory Table Entries In Use:        80
  Memory (KB) Used By Shared Memory Tabs:       382
     Shared Memory (KB) Used By Database:       128
               NMS Message Queue Entries:        48
          NMS Message Queue Ents. In Use:         0
        Memory (KB) Used For NMS Messages:        0
              Task Message Queue Entries:       512
         Task Message Queue Ents. In Use:         0
        Average Database Transaction Time:        0
```

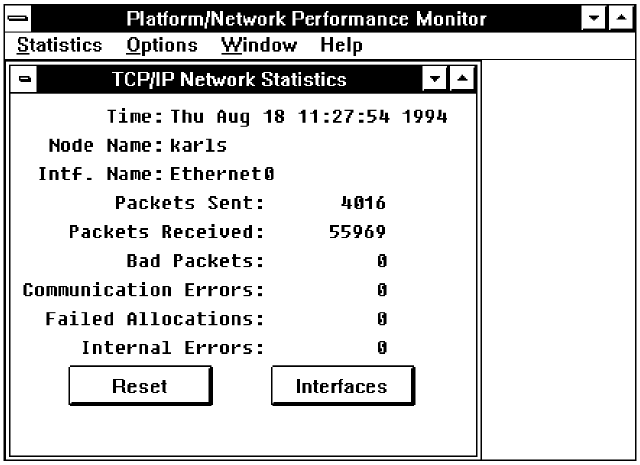
Table 12-1 describes the fields on this window.

Table 12-1. Performance Measurements Window Fields

Field	Description
Time	Current time and date.
Node Name	Name of monitored node.
System Memory (KB) Avl. to Windows	Total system memory.
Free System Memory (KB)	Free system memory.
Available System Resources	Total free system resources.
Executing Tasks	Number of tasks executing within Windows.
Task Registration Entries	Total number of NMS “Task Registration” entries.
Task Reg. Ents. In Use	Number of NMS “Task Registration” entries in use.
Shared Memory Table Entries	Total number of NMS “Memory Table” entries.
Shared Memory Table Entries In Use	Number of NMS “Memory Table” entries in use.
Memory (KB) Used By Shared Memory Tabs	Total memory in use for NMS “Memory Tables.”
Shared Memory (KB) Used By Database	Total memory in use for database related NMS “Memory Tables.”
NMS Message Queue Entries	Total NMS “Message Queue” entries.
NMS Message Queue Ents. In Use	Total NMS “Message Queue” entries in use.
Memory (KB) Used By NMS Messages	Total memory in use by NMS “Message Queue” message.
Task Message Queue Entries	Total NMS “Task Message Queue” entries.
Task Message Queue Ents. In Use	Total NMS “Task Message Queue” entries in use.
Average Database Transaction Time	Average time to complete a database transaction.

Viewing TCP/IP Network Statistics

Use **TCP/IP Network** to view TCP/IP network statistics. To access this command, choose Network from the Statistics pull-down menu, then TCP/IP Network from the Network pull-down menu. The TCP/IP Network Statistics window appears.


Platform/Network Performance Monitor
Statistics
Options
Window
Help
TCP/IP Network Statistics
Reset
Interfaces

```
               Time: Thu Aug 18 11:27:54 1994
          Node Name: karls
         Intf. Name: Ethernet0
           Packets Sent:       4016
       Packets Received:      55969
            Bad Packets:          0
   Communication Errors:          0
     Failed Allocations:          0
        Internal Errors:          0
```

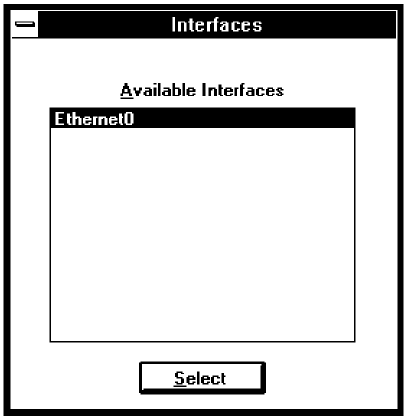
Table 12-2 describes the fields on this window.

Table 12-2. TCP/IP Network Statistics Window Fields

Field	Description
Time	Current time and date.
Node Name	Name of monitored node.
Intf. Name	Name of monitored interface of that node (as selected using the Interfaces button).
Packets Sent	Total number of packets sent.
Packets Received	Total number of packets received.
Bad Packets	Total number of bad packets received.
Communication Errors	Total number of communication errors.
Failed Allocations	Total number of memory allocations that failed.
Internal Errors	Total number of internal errors.

Use the Reset button to reset the statistics counters for the chosen interface.

Use the Interfaces button at the bottom of the TCP/IP Network Statistics window to select the interface to monitor. When you press Interfaces, the Interfaces dialog box appears.



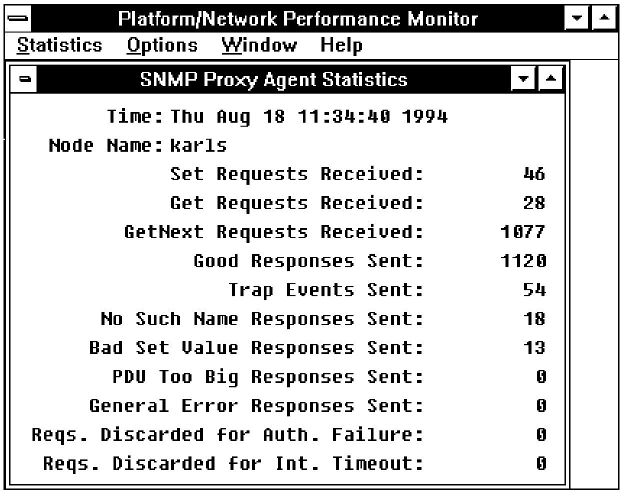
Highlight the desired interface, then press Select.

NOTE:

The Interfaces button is enabled only when TCP/IP interfaces are available.

Viewing SNMP Proxy Agent Statistics

Use **SNMP Proxy Agent** to view SNMP Proxy Agent statistics. To access this command, choose Network from the Statistics pull-down menu, then SNMP Proxy Agent from the Network pull-down menu. The SNMP Proxy Agent Statistics window appears.


Platform/Network Performance Monitor
Statistics
Options
Window
Help
SNMP Proxy Agent Statistics

```
           Time: Thu Aug 18 11:34:40 1994
      Node Name: karls
                Set Requests Received:      46
                Get Requests Received:      28
            GetNext Requests Received:    1077
                  Good Responses Sent:    1120
                     Trap Events Sent:      54
          No Such Name Responses Sent:      18
         Bad Set Value Responses Sent:      13
           PDU Too Big Responses Sent:       0
         General Error Responses Sent:       0
   Reqs. Discarded for Auth. Failure:        0
    Reqs. Discarded for Int. Timeout:        0
```

NOTE:

The SNMP Proxy Agent command is only active for monitored nodes that have the SNMP Proxy Agent feature installed and active.

Table 12-3 describes the fields on this window.

Table 12-3. SNMP Proxy Agent Statistics Window Fields

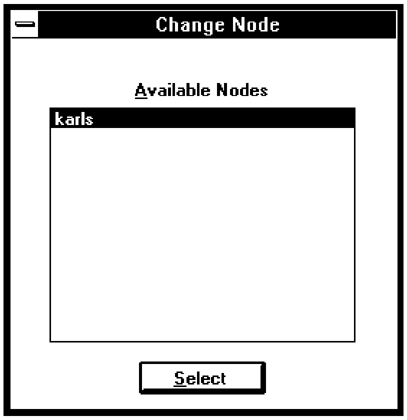
Field	Description
Time	Current time and date.
Node Name	Name of monitored node.
Set Requests Received	Total number of SNMP Set Requests received.
Get Requests Received	Total number of SNMP Get Requests received.
GetNext Requests Received	Total number of SNMP GetNext Requests received.
Good Responses Sent	Total number of good responses sent to manager.
Trap Events Sent	Total number of SNMP Trap events sent.
No Such Name Responses Sent	Total number of No Such Name responses sent to manager.
Bad Set Value Responses Sent	Total number of Bad Set Value responses sent to manager.
PDU Too Big Responses Sent	Total number of PDU Too Big responses sent to manager.
General Error Responses Sent	Total number of general errors found.
Reqs. Discarded for Auth. Failure	Total number of requests not accepted because the community name was invalid or the manager was not authorized.
Reqs. Discarded for Int. Timeout	Total number of requests discarded because of an internal timeout in the SNMP Proxy Agent.

Selecting a Node to Monitor

Use **Change Node** on the Options pull-down menu to select the network node to monitor.

▶ Procedure

1. Choose Options from the Main Menu.
2. Choose Change Node from the Options pull-down menu. The Change Node Dialog box appears.



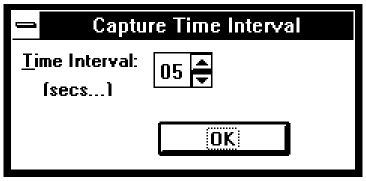
3. Highlight the desired node.
4. Press OK.

Setting the Capture Time Interval

Use **Capture Time Interval** to set the time interval between updates to displayed statistics.

▶ Procedure

1. Choose Options from the Main Menu.
2. Choose Capture Time Interval from the Options pull-down menu. The Capture Time Interval dialog box appears.



Time Interval: (secs...) 05

3. Select the desired time range from 5–60 seconds (default is 30 seconds).
4. Press OK.

Enabling or Disabling Database Timing

Use **Database Timing** to toggle the current database timing state. This option is available for the single-user NMS and when the selected node is a Multiuser Feature server.

NOTE:

Database Timing must be enabled for the Average Database Transaction Time appearing on the Platform Resources/Performance Measurements to display anything other than **0**.

Hard Disk and System Recommendations

13

Hard Disk and System Recommendations Overview

This chapter is intended to assist you in managing your hard disk. It contains guidelines for determining the NMS hard disk free space requirements, the NMS directory structure, and backup information.

Also described are the start-up and ongoing system resource error dialog boxes and the recommended corrective action.

Hard Disk Space Requirements

The required NMS hard disk space is the amount of available space within a single partition after all other software packages (including Microsoft Windows) have been installed. Refer to Chapter 2, *Installation*, for hard disk requirements.

Functional Requirements

NMS software must be loaded into a single hard disk partition. The required size varies proportionally with the number of devices in the network, average occurrence of alerts, and the length of time the records are stored before being purged.

The following explanations and formulas show the relationships between the basic functions of NMS and the required disk space. These are only guidelines; the actual usage may vary slightly.

- **Installation**

  NMS requires 20 Mb of disk free space to load.

- **Call Statistics Detail Records**

  For each local dial device, allocate 20 bytes per call per day. If you average 200 calls a day (# calls per day), 4000 bytes of space is required per day. The purge time can be configured between 0 and 90 days (a value of 0 indicates a purge will not be performed).

Formula: Required disk space = # local devices x # call per day x # days to purge x 20 bytes

Example: A network with 128 local dial devices (# local devices), averaging 200 calls per device per day (# calls per day), with a purge time of 30 days (# days to purge) requires 15.4 Mb of storage.

- **Call Statistics Summary Records**

  For each local dial device, allocate 350 bytes per day. The purge time can be configured between 1 and 13 months.

  Formula: Required disk space = # local devices x # months to purge x 31 x 350 bytes

  Example: A network with 128 local dial devices (# local devices) and a purge every month (# months to purge) requires 1.4 megabytes of disk space (assuming a 31-day month).

- **Alert History Records**

  For each device alert reported allocate 80 bytes. The purge time for alert history records can be configured between 0 and 90 days (a value of zero indicates that a purge will not be performed).

  Formula: Required disk space = # devices x # alerts per device x # days to purge x 80 bytes

  Example: A network with 128 devices that reports 100 alerts a day for a period of 30 days requires a little over 1 megabyte of disk space.

- **Device Configuration Records**

  For each device configured in the network, allocate 800 bytes.

  Formula: Required disk space = # devices x 800 bytes

  Example: A network with a 1000 device configuration (the maximum) requires .8 megabytes of disk space.

Sample Configuration

Assume a system with the following configuration:

- 128 local devices
- 872 remote devices
- Average call duration of 3 minutes
- A maximum of 20 calls per hour (480 calls per day) per local device
- Call Detail records purged after 30 days
- Call Summary records purged after 13 months
- A maximum of 1000 alerts per day or 1 alert per device
- Alert History purged after 30 days

Table 13-1 shows the sample configuration disk space requirements by function and the total space required.

Table 13-1. Sample Configuration

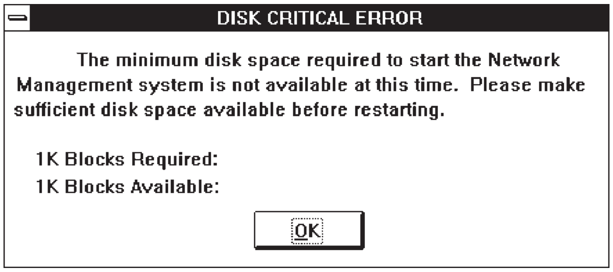
Function	Formula	Required Disk Space
Call Detail Display	128 x 480 x 30 x 20	36.9 Mb
Call Summary Display	128 x 13 x 31 x 350	18.1 Mb
Alert History	1000 x 1 x 30 x 80	2.4 Mb
Device Configuration	1000 x 800	0.8 Mb
		Total Required Disk Space = 78.2 Mb

Start-Up and Ongoing Requirements

NMS checks the system resources before start-up and while running. If any problems are encountered, a dialog box appears indicating the resource, the amount required, and the amount available.

Start-Up Requirements

Each time NMS is started, the free disk space available for NMS is checked. NMS will not load if the size of the database log files exceeds the amount of free space on the partition or if the amount of free space is less than approximately five megabytes. Instead, a dialog box appears, indicating the available space and the required space. You should make the required disk space available before restarting NMS.



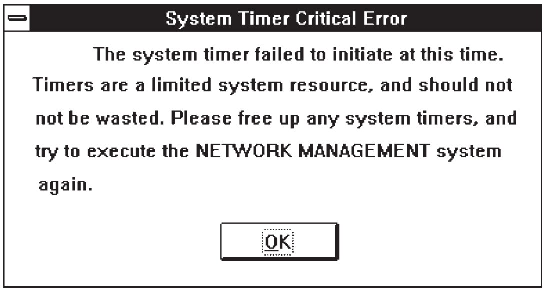
The minimum disk space required to start the Network Management system is not available at this time. Please make sufficient disk space available before restarting.

1K Blocks Required:
1K Blocks Available:

NOTE:

Do not delete any files in the COMSPHERE 6700 directory. Such an action can cause the system to become inoperable, forcing you to restore from a backup.

NMS uses one of 16 available Windows' timers. If, when starting, all of the timers are used by other applications, a dialog box appears. Close one or more windows and try to restart NMS.

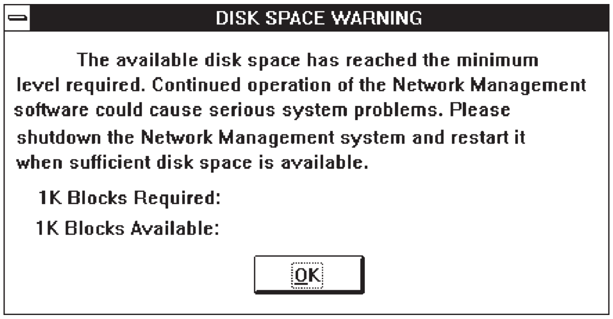


The system timer failed to initiate at this time. Timers are a limited system resource, and should not not be wasted. Please free up any system timers, and try to execute the NETWORK MANAGEMENT system again.

Ongoing Requirements

In addition to NMS checking the available disk space at start-up, NMS also periodically checks the system resources. Checked is the available computer memory (RAM), Windows resources, and available hard disk space.

If either the log files are too large (greater than the amount of free space) or if the amount of free space is less than five megabytes, a dialog box appears informing you of the condition.



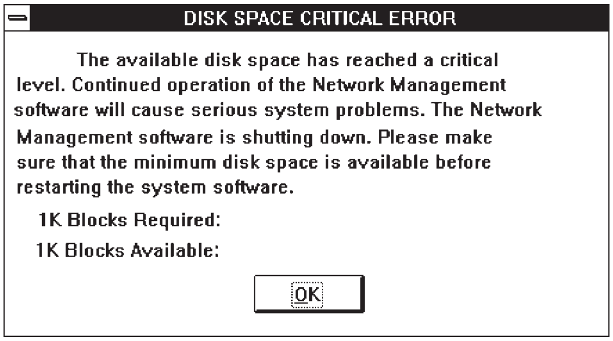
The available disk space has reached the minimum level required. Continued operation of the Network Management software could cause serious system problems. Please shutdown the Network Management system and restart it when sufficient disk space is available.

1K Blocks Required:

1K Blocks Available:

At this time it is best to shut down NMS and create more free space on the hard drive. You can, however, press the OK button on the dialog box to ignore the warning and continue normal operation.

When the size of the database log files approaches the free space left on the partition, NMS displays a dialog box indicating NMS is shutting down due to disk space limitations.



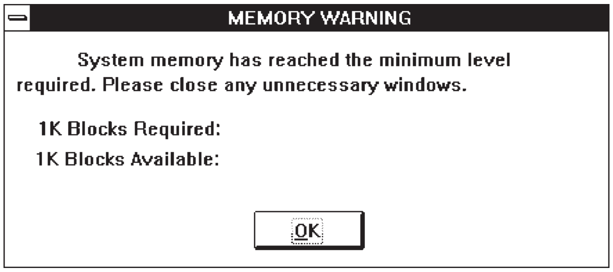
The available disk space has reached a critical level. Continued operation of the Network Management software will cause serious system problems. The Network Management software is shutting down. Please make sure that the minimum disk space is available before restarting the system software.

1K Blocks Required:

1K Blocks Available:

Then the system shut downs automatically. In such a case, the dialog box is left on the screen until you choose the OK button. One of the easiest ways to increase the available free space is by decreasing the purge periods for Alert History and Call Statistics records.

If NMS detects that sufficient RAM is no longer available, a dialog box appears indicating the currently available RAM, and the required amount.



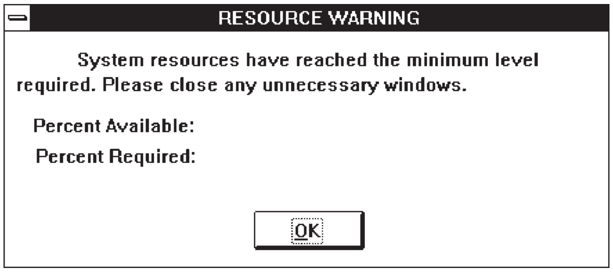
System memory has reached the minimum level required. Please close any unnecessary windows.

1K Blocks Required:

1K Blocks Available:

If the Memory Warning dialog box appears, close any unnecessary windows. If the warning appears frequently, either add more memory to the computer (refer to your computer manual for information on adding more memory) or increase the size of the Windows permanent swap file. Refer to the Windows user’s guide for additional information on creating or changing a permanent swap file.

If NMS detects that Windows resources are getting low, a warning dialog box appears.

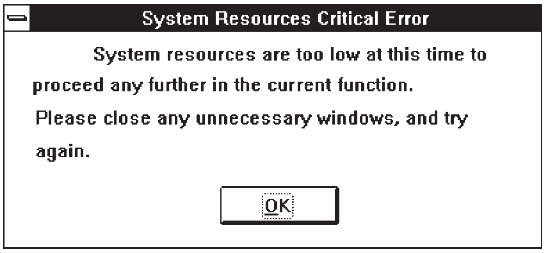


System resources have reached the minimum level required. Please close any unnecessary windows.

Percent Available:

Percent Required:

If Windows resources are too low to continue, a critical error dialog box appears. Close one or more windows to increase the available Windows resources.



System Resources Critical Error

System resources are too low at this time to proceed any further in the current function.

Please close any unnecessary windows, and try again.

Directories

The data in the following directories does not change and needs to be backed up only once after installation:

- PCNMS – Contains the .INI, .TXT, and .WRI files.
- PCNMS\BACKUP – Contains all of the database backup files created from the Export function.
- PCNMS HELP – Contains all of the Online HELP files.
- PCNMS MAPWMF – Contains all of the Network Map metafiles.
- PCNMS\INSTALL – Contains all of the installation updates and the latest release information.
- PCNMS\INSTALL\APL – Contains necessary APL device information files.
- PCNMS\INSTALL\DIAL – Contains necessary dial device information files.
- PCNMS\INSTALL\DSU – Contains necessary DSU device information files.
- PCNMS\EXE – Contains all of the executable code.

The data in the following directory changes as information is added or deleted from the NMS database.

- PCNMS\DCWRK – Contains all of the database files and any log files that have been created.

The PCNMS\DCWRK directory should be backed up periodically (approximately once a week) to ensure database integrity.

Backup Recommendations

There are many ways to make a backup of the hard disk. The method used is for you to decide. The important point to remember is DO IT. If no specific method has been decided upon, use the MS-DOS Backup command. Refer to the MS-DOS user's guide for additional information.

The following actions are strongly recommended when performing the backup procedure.

- ☑ The backup procedure must be performed on a directory basis. Do not attempt to back up single files.

  This is especially important for the PCNMS\DCWRK directory since this directory can contain various transaction log files. If the NMS is shut down properly, the data in these log files is automatically incorporated into the database. However, if the NMS shuts down too quickly (as in the case of a power failure, for example), any existing log files remain intact and must be included in the backup and restore procedure. Otherwise, the database is corrupted.

- ☑ When backing up the PCNMS\DCWRK directory, the NMS must not be running. If it is, you take the risk of losing statistical information (i.e., call statistics). Therefore, you may not have a current picture of your network when you are through with the backup procedure.

Database Functions

The following database functions are provided with NMS:

- **Database Export** – enables you to export information from the database to a disk file.
- **Database Import** – enables you to import information from a data file into the database.
- **Database Reorganization** – enables you to reduce fragmentation and condense the database.

Database Export

The Export database function allows you to extract information from all or individual tables. To choose this function, click on the Export icon recorded within the 6700 NMS group. The EXPORT.REQ file residing in the BACKUP directory assigned to the COMSPHERE 6700 root directory is used. All export data files created will be assigned to this BACKUP directory.

All tables will be exported if the AllTables label is set to **Yes**. If the AllTables label indicates **No**, then only those tables indicating **Yes** will be exported.

Before the database information is exported to the data files, the Format and Separator labels are processed. The Format label determines how the data will be formatted and which data files will be used.

If Format label indicates. . .	**The data is . . .**
Binary (default)	Stored in the database to the appropriate file using the extension DAT (e.g., DEVICE.DAT).
ASCII	Converted to ASCII and written to the appropriate file with the extension FIL.

The name of each column and its characteristics will be written to the appropriate file with the INF extension. Character data is enclosed in double quotes (”), commas are inserted between values in different columns, and spaces between values are stripped out. Each written record is terminated with a carriage return (x’0d’) and a line feed (x’0a’). The Separator label separates individual fields.

Example: 4,”Largo1,”,””,2,0,0,””,0,””,””,””,””,150,100,201,”1
/6”,0,0, 1,2,3,15,1,0,0,”A0

The table information file consists of the column name, column type, and column length. All columns defined as either Smallint or Integer will be converted to signed ASCII digits.

Example:

Column Name	Type	Len
dv_device_id	Smallint	0002
dv_name	Char	0015

The information recorded in the export request file is as follows:

```
[EXPORT]:

AllTables=Yes

Format=Binary
Separator=.
AlertControl=No
AlertDescription=No
AlertHistory=No
AlertThresholds=No
AlertBeeper=No
EventControl=No
EventDescription=No
EventAudit=No
DeviceSecurity=No
DTESecurity=No
VFSecurity=No
Cabinets=No
Carriers=No
ColorDescription=No
ColorGroups=No
Comments=No
CommunicationPorts=No
CallStatistics=No
ConnectSummary=No
Contacts=No
Devices=No
DeviceGroups=No
DeviceModels=No
DeviceName=No
GroupDevice=No
GroupColors=No
LegendValues=No
ModelFamily=No
MapViews=No
PhoneBook=No
PcnmsControl=No
Sites=No
StrapBank=No
StrapDescription=No
StrapGroups=No
Straps=No
StrapSettings=No
ThresholdDescription=No
UserDefaults=No
UserDevices=No
UserProfile=No
UserStraps=No
UserThresholds=No
```

Database Import

The Import database function allows you to insert information into all or individual tables. To choose this function, click on the Import icon recorded within the 6700 NMS group. The IMPORT.REQ file residing in the BACKUP directory assigned to the COMSPHERE 6700 root directory is used. All export data files created in Binary format and residing in the BACKUP directory will be read and recorded into the appropriate database tables.

All tables will be imported if the AllTables label is set to **Yes**. If the AllTables label indicates **No**, then only those tables indicating **Yes** will be imported.

The information recorded in the import request file is as follows:

```
[IMPORT]:

AllTables=No

AlertControl=No
AlertDescription=No
AlertHistory=No
AlertThresholds=No
AlertBeeper=No
EventControl=No
EventDescription=No
EventAudit=No
DeviceSecurity=No
DTESecurity=No
VFSecurity=No
Cabinets=No
Carriers=No
ColorDescription=No
ColorGroups=No
Comments=No
CommunicationPorts=No
CallStatistics=No
ConnectSummary=No
Contacts=No
Devices=No
DeviceGroups=No
DeviceModels=No
DeviceName=No
GroupDevice=No
GroupColors=No
LegendValues=No
ModelFamily=No
MapViews=No
PhoneBook=No
PcnmsControl=No
Sites=No
StrapBank=No
StrapDescription=No
StrapGroups=No
Straps=No
StrapSettings=No
ThresholdDescription=No
```

```
UserDefaults=No
UserDevices=No
UserProfile=No
UserStraps=No
UserThresholds=No
```

Database Reorganization

Database reorganization is necessary:

- When the database file becomes fragmented by repeated changes of tables and the speed of database operation is affected.
- After using the Purge All Calls and Purge Alerts commands.

Reorganization procedures are provided for Release 4.0 and Release 5.0.

▶ Procedure

To perform a reorganization with Release 4.0, do the following:

1. Ensure that the COMSPHERE 6700 Series NMS is shut down.
2. Using the RUN function available within the Program Manager File Menu item, type **`\PCNMS\EXE\WINTALK`** and press OK.
3. Select the Session and Connect menu items.
4. Select DCWRK, then choose OK.
5. Select the Utilities and Export menu items.
6. Choose the Entire Database check box, then choose OK.
7. After the export is completed, select the Session and Disconnect menu items, then choose OK.
8. Select the Admin and Install Database menu items.
9. Type **`DCWRK`** within the Database edit field.
10. Choose the New check box, then choose the Overwrite check box.
11. Select the Session and Connect menu items after the database is installed.
12. Select DCWRK, then choose OK.
13. Type **`set recovery off`**; then press CTRL/ENTER.
14. Select the Utilities and Import menu items.
15. Choose DCWRK.SQL from the Files list box, then choose OK.
16. Select the File and Exit menu items.
17. Choose No from the **{untitled} has changed. Save current changes?** message box.
18. Choose Yes from the **Disconnect All Databases?** message box.

This is an alternative method to reorganize the database. The procedure below unloads the database into a temporary file, reinitializes the database, and then reloads the database.

The temporary file is placed in the system default temporary directory, if found. If no TEMP variable is defined in AUTOEXEC.bat, then look in \WINDOWS\TEMP. There must be adequate free space on the drive that contains the temporary directory. The amount of space required could be twice the size of the database file.

This process will correct fragmentation of the tables within the database file. To correct fragmentation of the database file, use Windows DEFRAG or a similar third party utility.

▶ Procedure

To perform a reorganization with Release 5.0, do the following:

1. Ensure that the COMSPHERE 6700 Series NMS is shut down.
2. Backup the database file, **`C:\PCNMS\DCWRK\DCWRK.DBS`** and press OK.

   If an error occurs during reorganization, both the temporary file and the database could be lost.
3. Using the RUN function available within the Program Manager File Menu, type **`C:\PCNMS\EXE\SQLTALK.EXE`** and press OK.
4. In the Login dialog box, enter **`DCWRK`** for the database name and choose OK.
5. At the prompt SQL> in the **`SQLTALK`** window, type **`REORGANIZE;`** and press Enter.
6. After several lines of progress information, the prompt SQL> will reappear.

   The amount of time required for the reorganization is dependent on both the size of the database and the processing speed of the PC. The database reorganization could take an hour or longer.
7. Type **`EXIT`** and press Enter.

NMS Windows Conventions

A

NMS Windows Conventions Overview

This appendix contains descriptions of common window conventions used by the NMS. Most of these conventions are also common to Microsoft Windows.

The software conventions described in this appendix are the ones used in many of the NMS procedures contained in this manual. For concepts not covered here, refer to either your Windows user's guide, or to other chapters in this manual.

Online Help

NMS offers the same features and capabilities as Windows Online Help, such as an index, browse buttons, searching, and the ability to jump to other topics in the Help text.

NMS Online Help is structured to give information in layers of detail; you decide whether to limit yourself to the current information or to access additional information.

Additional Online Help information is flagged in two ways:

- The text is underlined and shown in color (default = green).
- The mouse pointer changes from an arrow to a hand.

When you click on the flagged text, the system either jumps to a new window with information about the underlined text, or it displays a drop-down box containing a note or definition.

Each NMS application has its own Help menu. Choose commands from the Help menu to access a range of topics about the specific NMS application.

Accessing Online Help

To access Online Help, either press F1 to access the application's Help Index, or select the Help command from the application's menu bar.

Selecting Help Topics

When you select Help from an application's menu bar, the pull-down menu lists may include the following topics:

- **Index**

  A list of all the Help topics available for this application.
- **Keyboard**

  A list of the application's accelerator keys, command keys, or directional keys.
- **Commands**

  A description of the functions available in the NMS application.
- **Procedures**

  A step-by-step description of how to execute the functions of the NMS application.
- **Glossary**

  Available only from the Main Menu. The definitions that pertain to NMS applications.

The second level of Help commands provides help on the NMS commands displayed in the menu bar.

The third level of Help commands provides information about using Help (Using Help) or displays the current version of NMS (About).

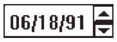
Select a command from the Help menu to access a Help window.

Scrolling

In addition to the normal Windows scrolling range fields, NMS uses scrolling for the **Date** and **Time**. To prevent invalid entries, the scrolling function presents only valid dates, times, or ranges.

Date Field

The scrolling **Date** field is used for all applications where you can enter a date value. An example of a scrolling **Date** field is shown (in U.S. format) below.



06/18/91

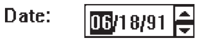
Using either the mouse or the keyboard, you can scroll through the month, day, and/or year to make your date selection.

▶ Procedure

To select a date (for example, **03/10/91**) using the scrolling date function:

1. If you are using a mouse, click on the part of the date (month, day or year) to be modified to highlight it.

   If you are using the keyboard, use the Cursor Left or Cursor Right key to move the cursor to select the month (part of the date you want to change).

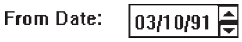


Date: 06/18/91

NOTE:

Be careful when you are incrementing the month that the current day also exists in the newly selected month. For example, if you want to change the date 01/31/91 to 02/28/91, you must change the day to 28 first; otherwise, the system will not let you increment the month to 02 (since there is no 31st day in February).

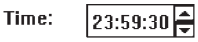
2. If you are using a mouse, click and hold the left mouse button on the up arrow until the month **03** scrolls into view. If you are using the keyboard, press and hold the Cursor Up key until the month **03** scrolls into view.
3. Repeat this procedure to increment the day to **10** and the year to **91**.



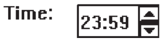
From Date: 03/10/91

Time Field

The scrolling **Time** field is used for all applications where you can enter a time value (from **00:00:00** through **23:59:59**). The scrolling **Time** field has two formats (with or without seconds), as shown below.



Time: 23:59:30



Time: 23:59

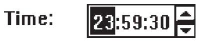
Using either the mouse or the keyboard, you can scroll through the hour, minute, and second (when applicable) to make your time selection.

▶ Procedure

To select a time (for example, **12:30:00**) using the scrolling time function:

1. If you are using a mouse, click on the part of the time (hour, minute or second) to be modified to highlight it.

   If you are using the keyboard, use the Cursor Left or Cursor Right key to move the cursor to the part of the time you want to highlight.

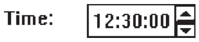


Time: 23:59:30

2. If you are using a mouse, click and hold the left mouse button on the up arrow button until the hour **12** scrolls into view.

   If you are using the keyboard, press and hold the Cursor Up key until the hour **12** scrolls into view.

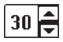
3. Repeat this procedure to increment the minute to **30** and the second to **00**.



Time: 12:30:00

Range Field

The scrolling Range field is used for all applications where you can select from a range of values. The scrolling Range field is shown below.



30

Using either the mouse or the keyboard, you can scroll through the range of values to make your selection.

A range value can be selected through various methods. Options include:

- Using the mouse, click on the Up or Down arrow to increase or decrease one unit of measure.
- Using the mouse, click on the value displayed in the box. This enables keyboard processing. Pressing the:
  - Up or Down arrow on the keyboard increases or decreases the displayed value by one unit of measure.
  - Home key on the keyboard results in display of the lowest value.
  - End key on the keyboard results in display of the highest value.
  - Page Up or Page Down key will increase or decrease the displayed value in increments determined by the maximum range divided by ten.

    For example, test duration maximum is 900 units and increments by 90 units.

Device Selection

You can begin an application from either the Main Menu or from within one of the monitors (Network Map, Carrier Monitor, Cabinet Monitor, Alert Monitor, or Hunt Group Monitor).

If you are starting an application from the Main Menu, the device selection list consists of the last device selection defined while within an active window. If you are starting an application from within one of the monitors, you can create your device selection list before starting an application.

When a device name(s) is required by an NMS application, device selection can use either of two methods. The first method uses a monitor window. The second method uses the Device Name button to access the device selection list and the Selection Browser to change the device selection list.

Both methods allow you to select more than one device (by using the device selection list), although most applications limit you to working with one device at a time. When you select multiple devices, you begin with a list of all the devices you need to work with, and from there you can choose each device, one at a time.

In applications that require specific device name(s), the Device Name button becomes available. Using this button, you can define a new device selection list, or select a device(s) from the current device selection list. The device selection list contains the names of devices you have chosen. From this list, you can then specify the device(s) on which the requested NMS application will take effect.

Although you have complete control over what devices appear in this device selection list, NMS also maintains a global device selection list for you, which consists of the last device list actively selected in any NMS window.

NOTE:

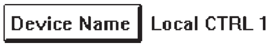
You must actively define a list within a NMS window before it becomes the global device selection list. Simply moving between NMS windows will not change the global device selection list.

All NMS windows pick up the global device selection list, but only when the list is created. This means you can create a device selection list in one window and then use this list in a new window. However, windows already open will not pick up the global device selection list.

Also, some windows require a specific type of device when processing. For example, front panel requires a dial or APL device for processing. In order to prevent continuous error messages when displaying a particular window, the device selection list is cleared to allow you to select the right type of device for the window.

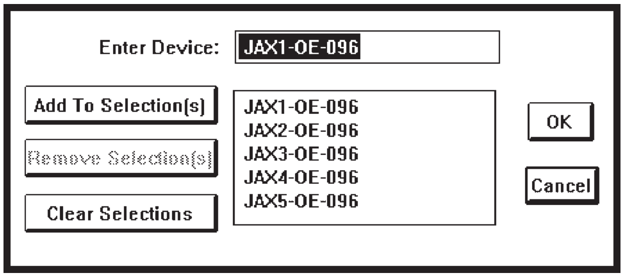
Device Name Button

The Device Name button becomes available to you once certain applications are open; it enables you to define a new device selection list or to choose from the current device selection list. The Device Name button consists of two parts: the actual button and a static field showing the name of the current selected device.



Local CTRL 1

When you choose Device Name, a dialog box similar to the one shown in Figure A-1 appears.



Enter Device: JAX1-OE-096

JAX1-OE-096
JAX2-OE-096
JAX3-OE-096
JAX4-OE-096
JAX5-OE-096

Figure A-1. Device Selection List Dialog Box

This dialog box enables you to select devices from the device selection list. This dialog box also enables you to add devices to the current selection list, delete devices from the current selection list, and clear all devices from the current selection list (making the device selection list empty).

Selecting a Device from the Device Selection List

With the current device selection list displayed (see Figure A-1), you can select a device either by typing a device name in the **Enter Device** field or by clicking on one of the devices in the selection list. Choose OK to confirm your device selection. All operations performed in the currently open window will affect this device.

You also have the option of typing in the name of an existing device not in this list. Once you choose OK, the new device is entered into this selection list and all operations performed in the current window affect this device. If you attempt to enter the name of a device that does not exist in the network, you will receive an error message.

Adding to or Deleting From the Device Selection List

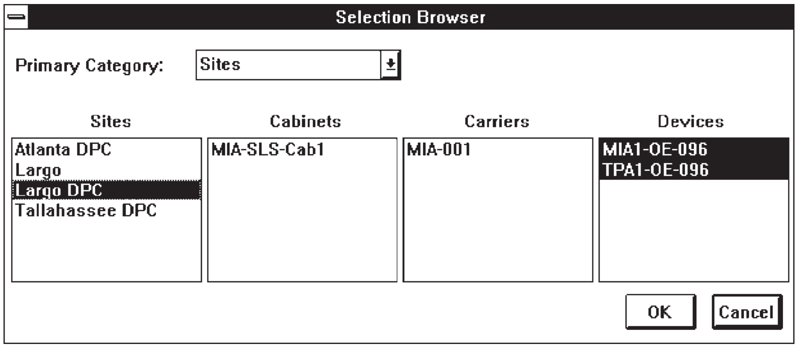
To add a device(s) to the device selection list, choose Add to Selection(s) and add devices using the Selection Browser window. The selection list will be changed to add any devices selected via the Selection Browser that were not already in the list. When you choose OK or Cancel, the window with the **Device Selection List** is displayed.

To delete from the device selection list, select the device(s) (see Figure A-1) to be removed from the list, then choose Remove Selection(s). The specified devices are removed from the device selection list.

To clear all devices from the device selection list (see Figure A-1), choose Clear Selection. The device selection list is now empty.

Selection Browser

The Selection Browser is a dialog box that enables you to browse through a list of possible device names and to select one or more devices. The browser provides you with the capability of creating a device selection list to use within various applications. The initial Selection Browser window is shown in Figure A-2.



Primary Category: Sites

Sites	Cabinets	Carriers	Devices
Atlanta DPC	MIA-SLS-Cab1	MIA-001	MIA1-OE-096
Largo			TPA1-OE-096
Largo DPC			
Tallahassee DPC			

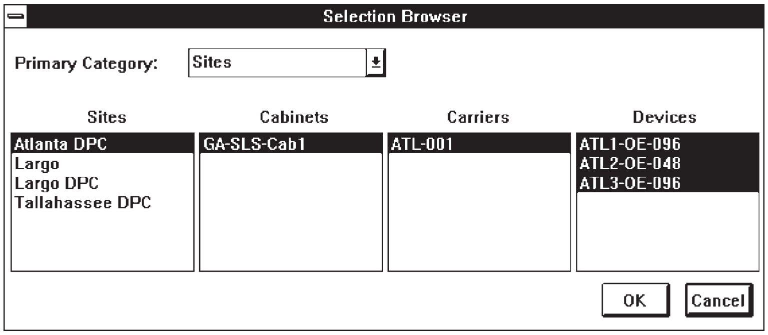
Figure A-2. Initial Selection Browser Window

The Selection Browser window consists of a **Primary Category** field and, depending upon the category selected, various other hierarchical categories displayed below.

Each one of these categories corresponds to a different browser window. That is, under each category name is a browser list of elements that exist in the network for that category.

For example, if the default category Sites is selected for the Primary Category field, all the sites in the network are then listed under the Sites category. If Site 1 is selected, it appears in reverse video, and all the cabinets, carriers and devices located at Site 1 are listed in their appropriate categories.

The **Devices** category is actually the device selection list. All of the devices listed under the **Devices** category appear in reverse video as shown in Figure A-3.



Primary Category: Sites

Sites	Cabinets	Carriers	Devices
Atlanta DPC	GA-SLS-Cab1	ATL-001	ATL1-OE-096
Largo			ATL2-OE-048
Largo DPC			ATL3-OE-096
Tallahassee DPC			

Figure A-3. Example Selection Browser Window

The Selection Browser window fields are described below.

- **Primary Category:** This field enables you to select the view of the network configuration that will be used when offering selection lists. The available categories are listed underneath this field.

The possible categories that can appear on the Selection Browser window are described as follows.

- **Sites:** This category contains the names of all the sites in the network. This list appears when Sites is the primary category.
- **Cabinets:** This category contains cabinet names. This list appears when Sites or Cabinets is the primary category. If Sites is the primary category, then only those cabinets associated with the highlighted site appear. If Cabinets is the primary category, then all the network cabinets appear.
- **Carriers:** This category contains carrier names. This list appears when Sites, Cabinets, or Carriers is the primary category. If Sites is the primary category, only those carriers associated with the highlighted site appear. If any cabinets are highlighted, only the associated carriers are highlighted. If Cabinets is the primary category, only those carriers associated with the highlighted cabinet appear. If Carriers is the primary category, all the network carriers appear.
- **Devices:** This category contains device names. This list always appears. If Sites is the primary category, only those devices associated with the highlighted site appear. If any cabinets or carriers are highlighted, only the associated devices are highlighted. When you select a device from this category, the device name will be in the device selection list. You can select one or more devices.
- **Device Groups:** This category contains all device groups in the network. When you select a device group, the names of all the devices in that group are displayed under the Devices category. You can further limit your selection by deselecting one or more devices within the selected device group.

- **Local Devices:** This category contains all the local devices in the network. When Local Devices is selected, all local devices in the network are displayed under the Devices category.
- **Remote Devices:** This category contains all the remote devices in the network. When Remote Devices is selected, all remote devices in the network are displayed under the Devices category.
- **Model Type:** This category contains all the device models in the network. When Model Type is selected, all devices of that model in the network are displayed under the Devices category. You can further limit your selection by deselecting one or more devices within the selected model type.
- **Security Group:** This category contains all devices assigned to a security group.
- **Hunt Group:** This category contains all devices assigned to a hunt group.
- **Local Connection:** This category contains all leased lines and their tributaries.
- **Selection Browser:** When you select one of the primary categories, one or more categories with their corresponding selection list(s) appear.

  These selection lists can show the sites, cabinets, carriers, devices, device groups, local devices, remote devices, and/or model types in your network, depending upon the category you chose. An example is using the Selection Browser to select all the devices associated with a site.

  To add devices to the current device selection list (which could be empty) using the Selection Browser, perform the following steps:

▶ Procedure

1. Choose Device Name. The device selection box appears.
2. Choose Add To Selection(s) and the Selection Browser dialog box appears with the default selection Sites as the primary category.
3. Select one or more sites from those listed in the Sites category. All the selected sites, as well as all cabinets, carriers, and devices at the site(s), are displayed under their appropriate category name (see Figure A-3).
4. At this point, the device selection list (shown in reverse video under the Devices category) consists of all the devices at the selected site(s).
5. Limit the device selection list (if desired) by selecting specific cabinet(s) or carrier(s) listed for that site. For example, if a cabinet is selected, only the devices in that cabinet will be highlighted in the device selection list.
6. Once you have finished your selection of device names for the device selection list, choose OK. The devices that currently appear in the device selection list are added to those that have already been previously selected for the device selection list (if any). You then return to the device selection list dialog box (see Figure A-1).

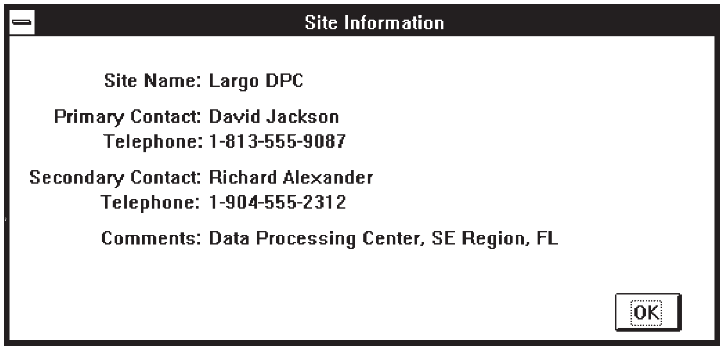
Use the preceding steps to add to the device selection list by highlighting cabinets, carriers, device groups, etc. You can choose Cancel at any time to exit the Selection Browser without changing the device selection list.

Information Display

Selecting Info (Information) from an application's menu bar displays a dialog box. The dialog box displayed depends upon whether you have chosen a site, cabinet, carrier, device, or facility. To close any of the dialog boxes, choose OK.

Site Information Dialog Box

The Site Information dialog box contains the data shown in Figure A-4.

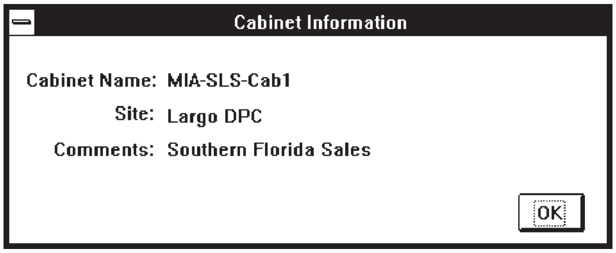


Site Name: Largo DPC
Primary Contact: David Jackson
Telephone: 1-813-555-9087
Secondary Contact: Richard Alexander
Telephone: 1-904-555-2312
Comments: Data Processing Center, SE Region, FL

Figure A-4. Example Site Information Dialog Box

Cabinet Information Dialog Box

The Cabinet Information dialog box contains the data shown in Figure A-5.

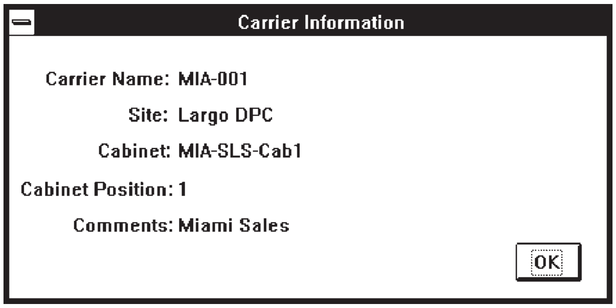


Cabinet Name: MIA-SLS-Cab1
Site: Largo DPC
Comments: Southern Florida Sales

Figure A-5. Example Cabinet Information Dialog Box

Carrier Information Dialog Box

The Carrier Information dialog box contains the data shown in Figure A-6.

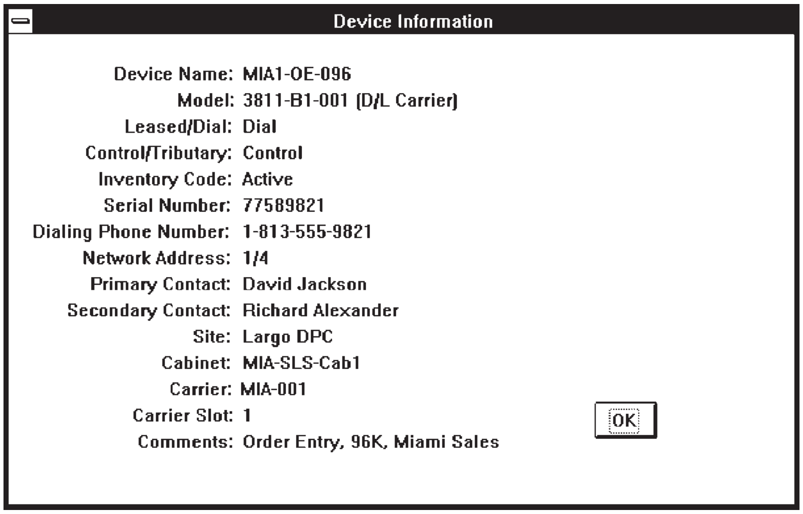


Carrier Name: MIA-001
Site: Largo DPC
Cabinet: MIA-SLS-Cab1
Cabinet Position: 1
Comments: Miami Sales

Figure A-6. Example Carrier Information Dialog Box

Device Information Dialog Box

The Device Information dialog box contains the data shown in Figure A-7.

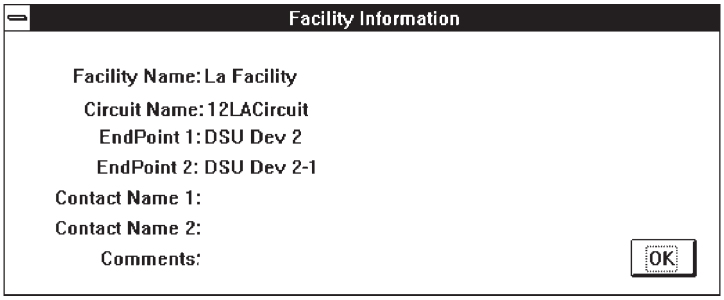


Device Name: MIA1-OE-096
Model: 3811-B1-001 (D/L Carrier)
Leased/Dial: Dial
Control/Tributary: Control
Inventory Code: Active
Serial Number: 77589821
Dialing Phone Number: 1-813-555-9821
Network Address: 1/4
Primary Contact: David Jackson
Secondary Contact: Richard Alexander
Site: Largo DPC
Cabinet: MIA-SLS-Cab1
Carrier: MIA-001
Carrier Slot: 1
Comments: Order Entry, 96K, Miami Sales

Figure A-7. Example Device Information Dialog Box

Facility Information Dialog Box

The Facility Information dialog box contains the data shown in Figure A-8.

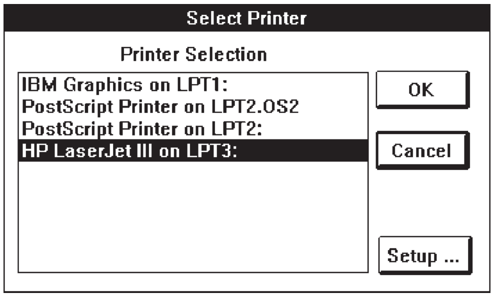


Facility Name: La Facility
Circuit Name: 12LACircuit
EndPoint 1: DSU Dev 2
EndPoint 2: DSU Dev 2-1
Contact Name 1:
Contact Name 2:
Comments:

Figure A-8. Example Facility Information Dialog Box

Printer Selection

If NMS is configured to use the Select Printer dialog box for report output, the Select Printer dialog box (Figure A-9) appears. Select one of the printers in the Printer Selection list and choose OK.



IBM Graphics on LPT1:
PostScript Printer on LPT2.OS2
PostScript Printer on LPT2:
HP LaserJet III on LPT3:

Figure A-9. Example Printer Selection Dialog Box

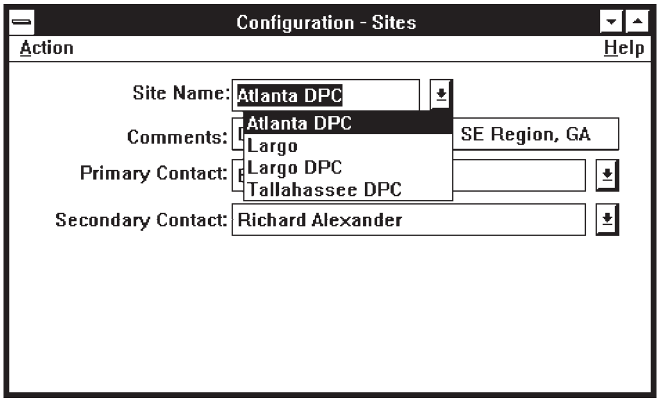
If NMS is not configured to use the Select Printer dialog box, any requests for printouts will be routed to the default printer.

See *Setting Up the System Printer* in Chapter 4, *Configuration*, for additional information on printers and the Select Printer dialog box.

This dialog box displays all configured printers assigned to a port or to FILE. Select any printer in the list, then choose OK to print at the specified printer. The Cancel button cancels the print request. The Setup... button uses the printer setup dialog provided by the printer’s Microsoft Windows driver.

Drop-Down List Box

The drop-down list box displays available choices (see Figure A-10). In a drop-down list box, the current choice (default) is highlighted. Selecting the arrow to the right of the default enables you to open a list box of available choices.



Site Name: Atlanta DPC

Atlanta DPC
Largo
Largo DPC
Tallahassee DPC

Comments: SE Region, GA

Primary Contact:

Secondary Contact: Richard Alexander

Figure A-10. Example Drop-Down List Box

If there are more choices available than what is listed in the box, you can use the scroll bars provided to scroll through these other choices.

Using the Mouse and Keyboard

The mouse and keyboard allow you to move through windows and enter information.

Using the Mouse

Use the left button to perform all of the NMS functions, such as selecting items from a menu, moving the windows, etc. Moving the mouse across a flat surface moves the cursor on the screen. If you run out of room for the mouse (by going off the edge of the table, for instance), lift the mouse and put it back down where you have more room.

The following definitions will help you use your mouse.

- Point – Move the mouse until the cursor rests where you want it.
- Press – Hold down the left button.
- Click – Quickly press and release the left button.
- Drag – Hold down the left button while moving the mouse.
- Double-click – Click the left button twice in rapid succession. Do not move the mouse while double-clicking.

Using the Keyboard

The keyboard is used by itself to select NMS functions and with the mouse to enter information into the database.

Choosing a Pull-Down Menu from the Menu Bar

To choose a pull-down menu from the menu bar, press the Alt key, highlight the menu that you want to select using one of the cursor keys and press Enter. Or, type **`Alt +`** the underlined letter of the desired pull-down menu listed in the menu bar.

Choosing a Window or Cascading Menu from a Pull-Down Menu

To choose a window or a cascading menu from the pull-down menu, highlight the window (or cascading menu) that you want to choose using the cursor keys and press Enter. Or, type the underlined letter of the window (or cascading menu).

Keyboard Accelerators

Keyboard accelerators are keyboard commands designed to allow an experienced user to perform a selected task more quickly. Various windows have certain keyboard accelerators assigned to perform specific functions by pressing just a few keys.

For example, the Network Map enables you to acknowledge an alert for the currently selected device(s) by pressing the Ctrl + A keys rather than having you select Acknowledge Alert from the menu.

The keyboard accelerators available for a specific window are described at the end of each chapter discussing that window.

Record and Device Locks

B

What are Record and Device Locks?

This appendix explains how the COMSPHERE 6700 Series NMS Multiuser feature uses record and device locks to protect the 6700 NMS database. Procedures for viewing and forcefully unlocking these locks follow the explanation. Locks enable the 6700 Series NMS in a multiuser environment to protect the integrity of its database and the data contained within its devices.

Record Locks

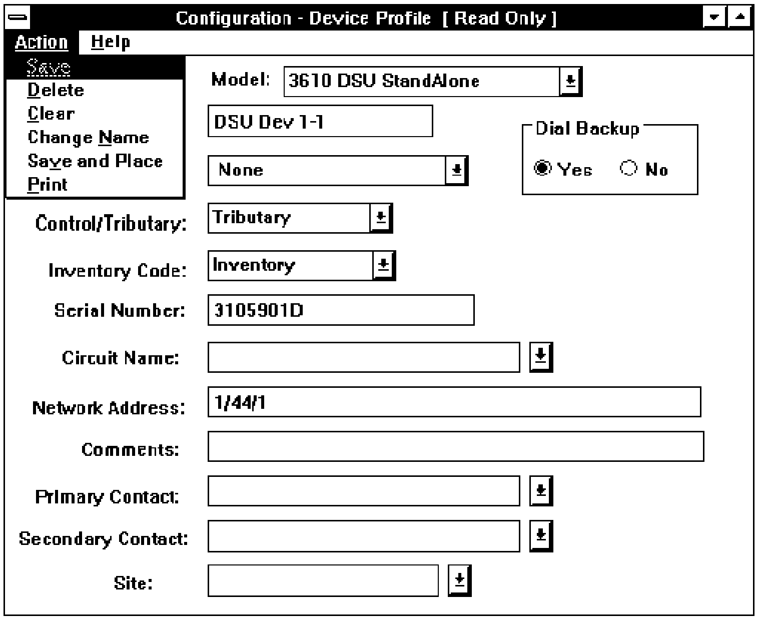
When using the Multiuser feature, the first user to request a record in the database receives the record with a read/write lock. Any additional users that request the same record in the database are limited to read-only access.

Record locks can occur in the following NMS functional areas:

- Cabinets
- Carriers
- Communications
- Contact Names
- Device Groups
- Device Profiles
- Device Options
- Facilities
- Hunt Groups
- Network Map
- Sites
- Thresholds
- VF Passwords

NMS tells you that you have read-only access by displaying **(Read Only)** on the title bar of the window or dialog box you selected, and by graying some of the menu items on the Action menu.

Figure B-1 shows (Read Only) on the title bar and how the Action menu looks if you select a device whose database record is locked by another user.



Model: 3610 DSU StandAlone

DSU Dev 1-1

None

Dial Backup ● Yes ○ No

Control/Tributary: Tributary

Inventory Code: Inventory

Serial Number: 3105901D

Circuit Name:

Network Address: 1/44/1

Comments:

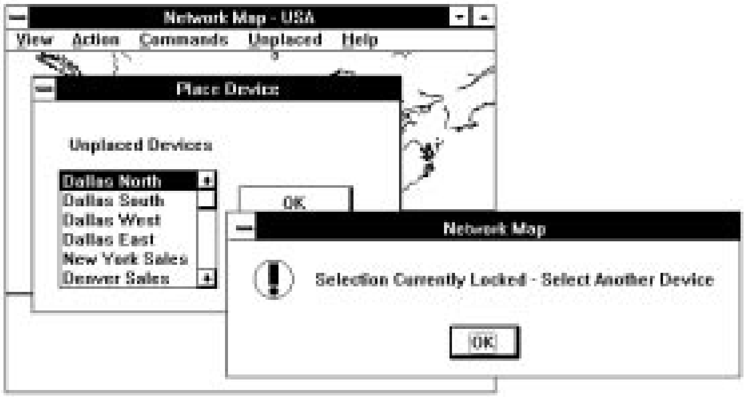
Primary Contact:

Secondary Contact:

Site:

Figure B-1. Device Configuration Window with Read-Only Access

On the Network Map, if you try to place or move a device that is locked by another user, a message box appears, as shown in Figure B-2.



Selection Currently Locked - Select Another Device

Figure B-2. Network Map with Lock Message

Device Locks

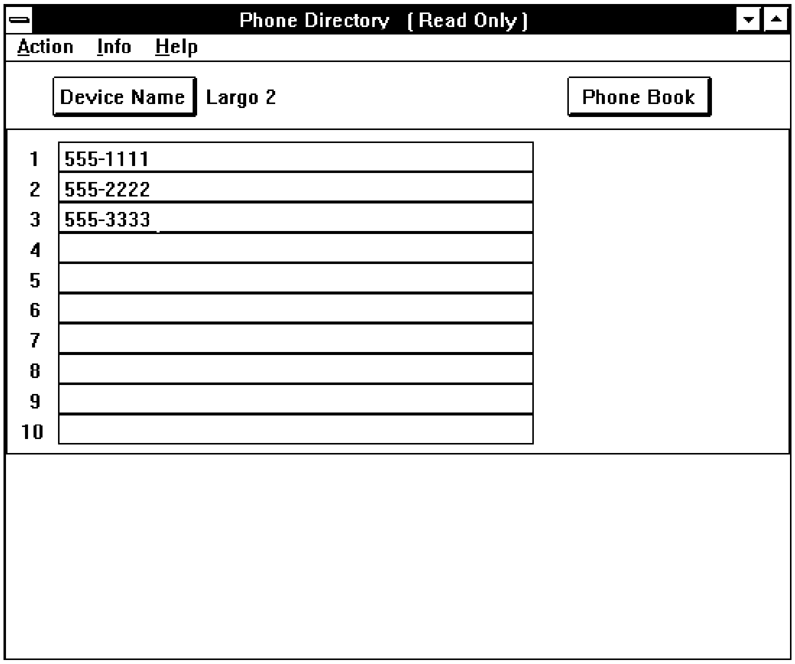
This locking concept also applies to devices; the first user to request access to data within a device gets read/write access, and any additional users that request access to that same device's data get read-only access.

Device locks can occur in the following NMS functional areas:

- Administrative Password
- Device Groups
- Device Management
- Device Options
- Phone Directory
- Reset Security Table
- Security Download
- Security Prompt Strings
- Thresholds

NMS tells you that you have read-only access to a device by displaying **(Read Only)** at the top of the window or dialog box.

Figure B-3 shows how the Phone Directory looks if you select a device whose data is locked by another user.

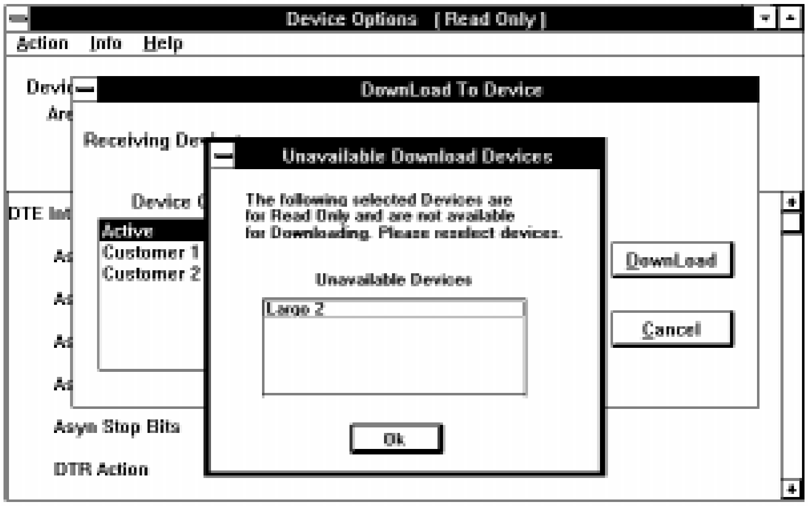


Device Name: Largo 2

1 555-1111
2 555-2222
3 555-3333
4
5
6
7
8
9
10

Figure B-3. Phone Directory Window with Read Only Access

When you attempt to perform an NMS function on multiple devices and one or more of those devices is locked by another user, an Unavailable Devices dialog box appears, as shown in Figure B-4.



The following selected Devices are
for Read Only and are not available
for Downloading. Please reselect devices.

Figure B-4. Device Options Window with Unavailable Devices Dialog Box

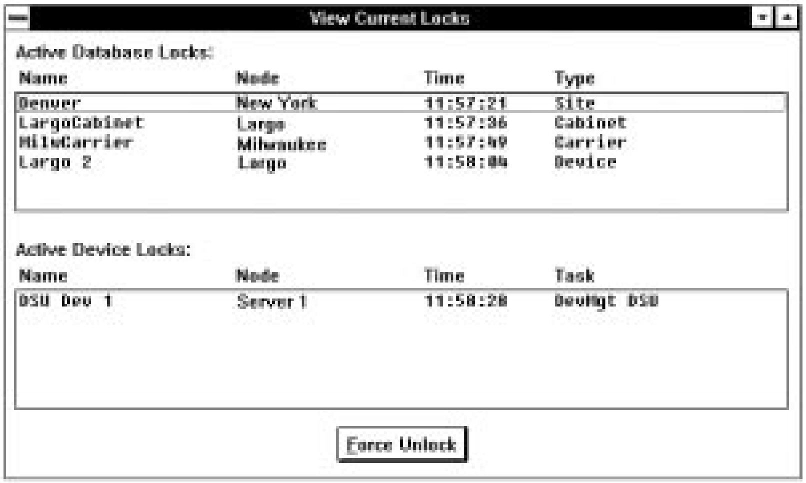
This dialog box lists all locked devices for which the chosen function will not be completed. You must attempt that function for those devices later. The function is completed for all selected devices that do not appear in the Unavailable Devices dialog box.

Viewing and Unlocking Active Locks

Use the **Lock** icon on the 6700 Series NMS toolbar to view active record and device locks. The system administrator can also use this feature to unlock active record and device locks.

Viewing Procedure

To view active record and device locks, using the right mouse button, double-click on the Lock icon on the 6700 Series NMS toolbar. The View Current Locks window appears, as shown in Figure B-5.



Active Database Locks:

Name	Node	Time	Type
Denver	New York	11:57:21	Site
LargoCabinet	Largo	11:57:36	Cabinet
MilwCarrier	Milwaukee	11:57:49	Carrier
Largo 2	Largo	11:58:04	Device

Active Device Locks:

Name	Node	Time	Task
DSU Dev 1	Server 1	11:58:28	DevMgt DSU

Figure B-5. View Current Locks Window

This window has a list box for active database locks and a list box for active device locks. The window will refresh the information based on a Refresh Timer of five seconds. Use the scroll bars to view additional information. (See Tables B-1 and B-2.)

Table B-1. Active Record Locks List

Field	Description
Name	Name of the locked database record.
Node	Name of the node holding the lock.
Time	Time the lock was granted.
Type	Type of the locked database record (Device, Carrier, Cabinet, Site, Device Group, Password, Contact Names, Phone Number).

Table B-2. Active Device Locks List

Field	Description
Name	Name of the locked device.
Node	Name of the node holding the lock.
Time	Time the lock was granted.

Force Unlocking Procedure

NOTE:

Only the system administrator has the ability to forcefully unlock record and device locks. For other users, the Force Unlock button is inoperable.

▶ Procedure

1. Use the right mouse button to double-click on the Lock icon on the 6700 Series NMS toolbar. The View Current Locks window appears, as shown in Figure B-5.

   This window has a list box for active record locks and a list box for active device locks. Use the scroll bars to view additional information.

2. Move the scroll bar to the record or device you wish to unlock.
3. Choose Force Unlock.

NOTE:

If you select a lock entry, the Refresh Timer will be disabled until either the Force Unlock button is pressed or the entry is deselected.

Cabling Requirements

C

Cabling Requirements Overview

This appendix provides detailed information on NMS cabling requirements.

Supplied Adapter

Supplied with the system is a DB-25-S socket to 6-pin modular plug adapter, Part Number 002-0025-0031. The adapter is wired as indicated in Table C-1.

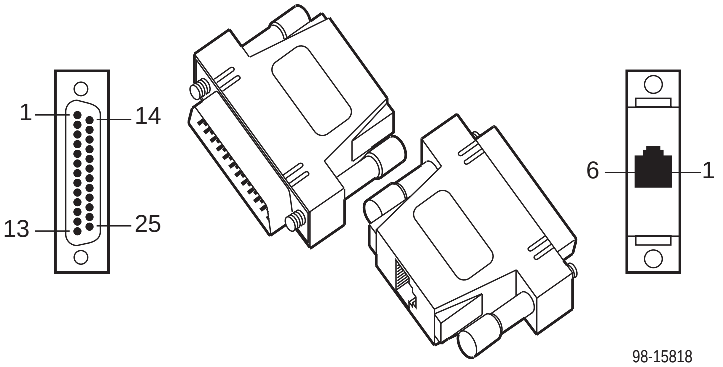
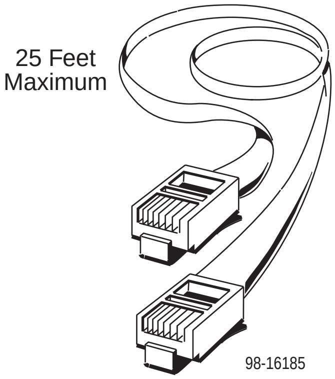


Table C-1. DB-25 to 6-Pin Adapter Wiring

Signal Name	DB-25-S Pin Number	6-Pin Modular Jack Pin Number
Transmit Data (TD)	2	5
Receive Data (RD)	3	3
Request To Send (RTS)	4	1
Clear To Send (CTS)	5	2
Signal Ground (SG)	7	4

SDU Cable

A 6-conductor cable, Part Number 835-1224-2511, with a 6-pin modular plug on each end, wired one-to-one, is required to connect the adapter (Part Number 002-0025-0031) to the Shared Diagnostic Unit (SDU). The cable should not be longer than 25 feet and must conform to all local and national codes and regulations. If necessary, consult with the applicable regulatory agencies and inspection authorities to ensure compliance.



Optional Adapter

Some computers need an extra adapter to connect the adapter (Part Number 002-0025-0031) to their computer. The most common required adapter is the DB9-S to DB25-P type. Table C-2 lists the required wiring for such an adapter. Verify the type of connector and wiring requirements of your specific serial port before proceeding.

Table C-2. DB9 to DB25 Adapter Wiring

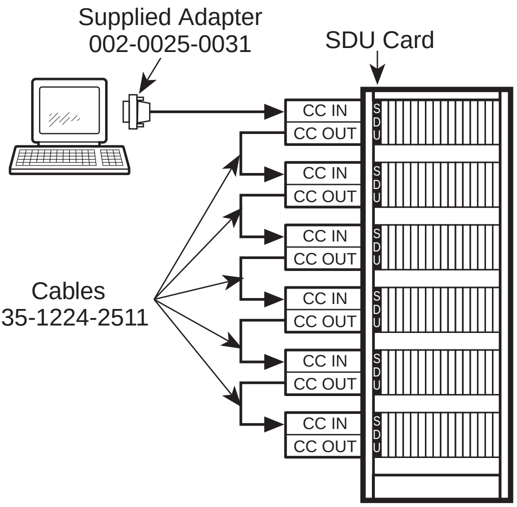
Signal Name	DB9-S Pin Number	DB25-P Pin Number
Transmit Data (TD)	3	2
Receive Data (RD)	2	3
Request To Send (RTS)	7	4
Clear To Send (CTS)	8	5
Signal Ground (SG)	5	7

Any adapters used must conform to all local and national codes and regulations. If necessary, consult with the applicable regulatory agencies and inspection authorities to ensure compliance.

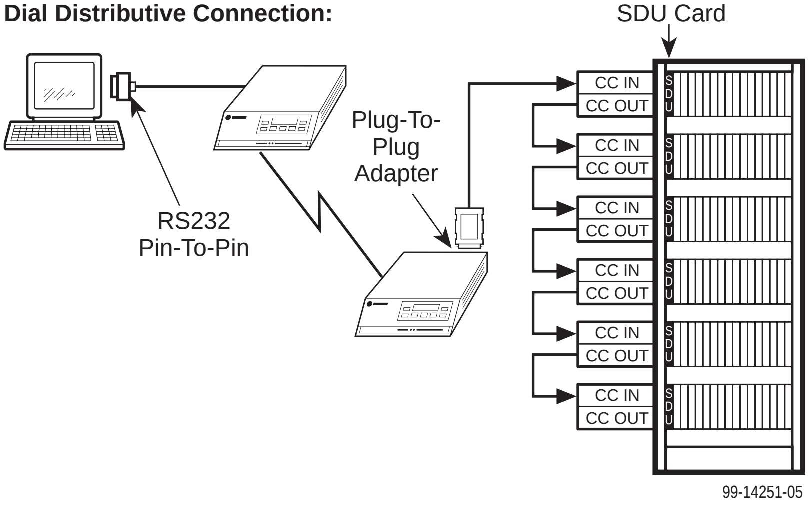
Connecting Locally

The following diagrams illustrate local connections to the control channels.

Normal Connection:



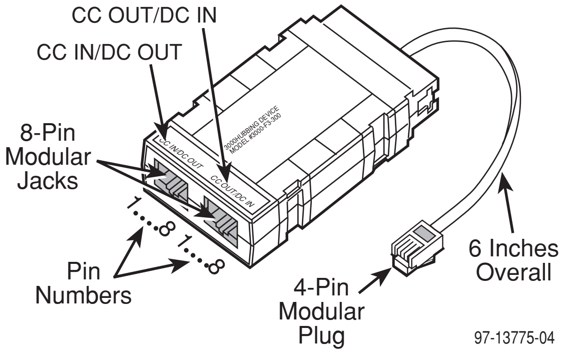
Dial Distributive Connection:



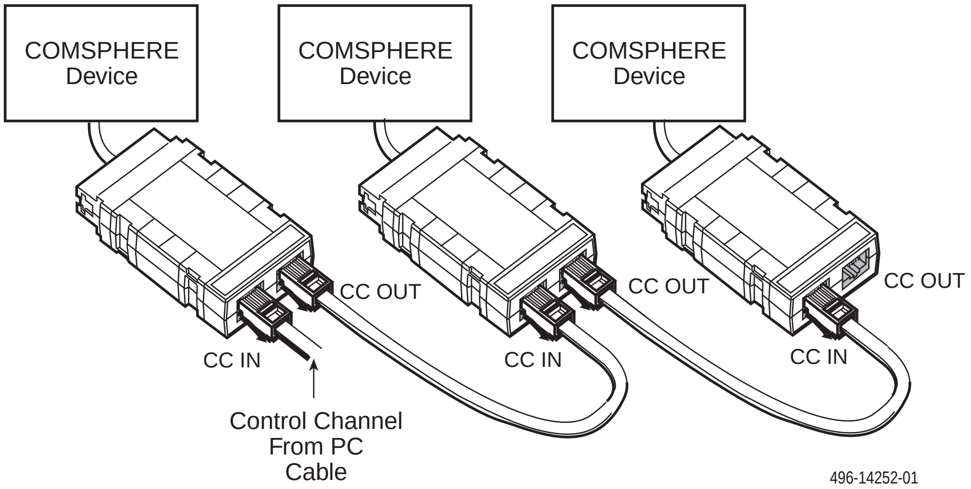
Using a Hubbing Device

For connection to a control channel (CC), the COMSPHERE standalone devices must be equipped with the hubbing device. The hubbing device permits multiple devices to be daisy chained together. The hubbing device is not required for carrier-mounted devices.

Hubbing Device



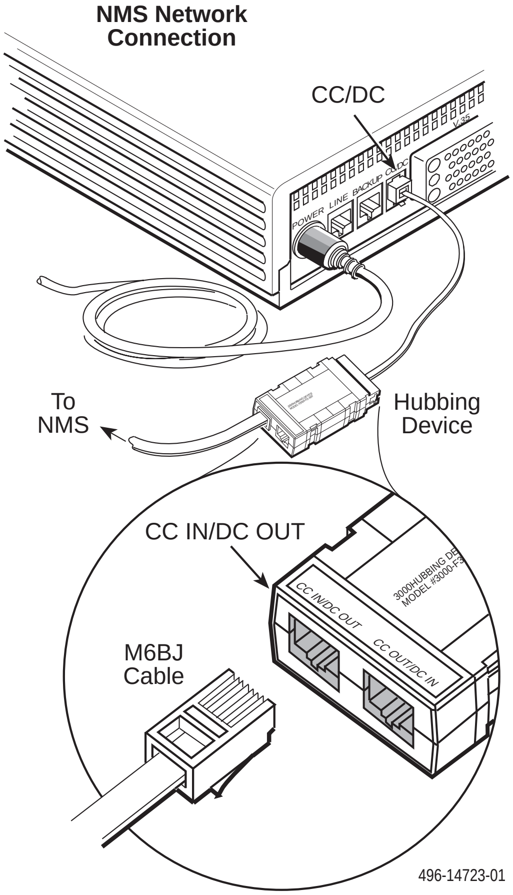
The following is an example of a control channel (CC) daisy chain.



Procedure

To chain together COMSPHERE standalone devices to a control channel (CC), perform the following steps:

1. To start the daisy chain, connect the control channel to the modular jack marked **CC IN/DC OUT** on the hubbing device connected to the first device.



2. To extend the daisy chain to the other devices, connect the cable from the **CC OUT/DC IN** jack on the first hubbing device to the **CC IN/DC OUT** jack on the hubbing device connected to the next device.
3. Continue to daisy chain devices in this manner, as necessary. You can daisy chain up to 256 devices in a single control channel.

Data Input Sheets

D

Data Input Sheets Overview

Use this appendix to help prepare for network configuration. This appendix contains the data input sheets discussed in Chapter 5, *Displays*. Photocopy these data input sheets and use them as worksheets to write in the requested network information. Have the worksheets at your side when you begin network configuration. The data input sheets contained within this appendix are listed in Table D-1.

Table D-1. Data Input Sheets

Data Input Sheet	Page
Contact List Configuration Data Input Sheet	D-2
Site Configuration Data Input Sheet	D-2
Cabinet Configuration Data Input Sheet	D-2
Carrier Configuration Data Input Sheet	D-3
Device Configuration Data Input Sheet (Carrier Device)	D-3
Device Configuration Data Input Sheet (Standalone Device)	D-4
Facilities Configuration Data Input Sheet	D-4
Device Groups Configuration Data Input Sheet	D-5
Phone Directory Data Input Sheet	D-5
Alert Controls – Model Configuration Data Input Sheet	D-6
Alert Controls – Device Configuration Data Input Sheet	D-7
System Options Configuration Data Input Sheet	D-8
User Profile Configuration Data Input Sheet	D-8
Customer Name Configuration Data Input Sheet	D-8
Phone Book Configuration Data Input Sheet	D-9
Communications Configuration Data Input Sheet	D-9
TCP/IP Network Configuration Data Input Sheet	D-10

CONTACT LIST CONFIGURATION DATA INPUT SHEET

Contact Name: ____________________

Address: ____________________

____

____

____

Telephone: ____________________

Comments: ____________________

____

____

____

SITE CONFIGURATION DATA INPUT SHEET

Site Name: ____________________

Comments: ____________________

____

Primary Contact: ____________________

Secondary Contact: ____________________

____

CABINET CONFIGURATION DATA INPUT SHEET

Cabinet Name: ____________________

____

Comments: ____________________

____

____

Site Name: ____________________

____

CARRIER CONFIGURATION DATA INPUT SHEET

Carrier Name:______________________________

Comments: ______________________________

____

Cabinet Name:______________________________

Cabinet Position:______________________________

DEVICE CONFIGURATION DATA INPUT SHEET (Carrier Device)

Model: ______________________________
Device Name: ______________________________
Leased/Dial: ______________________________
Control/Tributary:______________________________
Inventory Code:______________________________
Serial Number:______________________________
Dialing Phone Number:______________________________
Network Address:______________________________
Comments:______________________________
____

Primary Contact:______________________________
Secondary Contact:______________________________
Carrier:______________________________
Carrier Slot:______________________________

DEVICE CONFIGURATION DATA INPUT SHEET (Standalone Device)

Model: ______________________________

Device Name: ______________________________

Leased/Dial: ______________________________

Control/Tributary: ______________________________

Inventory Code: ______________________________

Serial Number: ______________________________

Dialing Phone Number: ______________________________

Network Address: ______________________________

Comments: ______________________________

____

____

Primary Contact: ______________________________

Secondary Contact: ______________________________

Site: ______________________________

FACILITIES CONFIGURATION DATA INPUT SHEET

Facility Name: ______________________________

Type of Facility: ______________________________

Circuit Name: ______________________________

EndPoint 1: ______________________________

EndPoint 2: ______________________________

Primary Contact: ______________________________

Secondary Contact: ______________________________

Comments: ______________________________

____

____

____

DEVICE GROUPS CONFIGURATION DATA INPUT SHEET

Group Name:________________________________

Comments:________________________________

Device	Model	Site

PHONE DIRECTORY DATA INPUT SHEET

Device Name: ________________________________

1:________________________________

2:________________________________

3:________________________________

4: ________________________________

5:________________________________

6:________________________________

7:________________________________

8:________________________________

9:________________________________

10:________________________________

ALERT CONTROLS – MODEL CONFIGURATION DATA INPUT SHEET

Device Model: ____

	Alert Priority	Duration	Exclude Alert
Device Failure:	________	________	________
Configuration Change Notify:	________	________	________
Test Mode:	________	________	________
Disabled:	________	________	________
VF Threshold Exceeded:	________	________	________
Facility Alarm:	________	________	________
External Alarm:	________	________	________
Streaming Terminal:	________	________	________
TDM Failure:	________	________	________
Dial Backup Active for APL:	________	________	________
DTE Alarm:	________	________	________
Sub-normal Operating Speed:	________	________	________
Primary Channel Interrupted:	________	________	________
Firmware Downloading:	________	________	________
Make Busy Mode:	________	________	________
Service Line:	________	________	________
Non-answering Modem:	________	________	________
Short Holding Time Modem:	________	________	________
No Response:	________	________	________

Alert Priority is either **Critical, Major,** or **Minor**.
Duration is between 5 and 300 seconds in 5 second increments.
Exclude Alert is either **N** for don’t exclude or **Y** for exclude.

ALERT CONTROLS – DEVICE CONFIGURATION DATA INPUT SHEET

Device Model: ____

	Alert Priority	Duration	Exclude Alert
Device Failure:	________	________	________
Configuration Change Notify:	________	________	________
Test Mode:	________	________	________
Disabled:	________	________	________
VF Threshold Exceeded:	________	________	________
Facility Alarm:	________	________	________
External Alarm:	________	________	________
Streaming Terminal:	________	________	________
TDM Failure:	________	________	________
Dial Backup Active for APL:	________	________	________
DTE Alarm:	________	________	________
Sub-normal Operating Speed:	________	________	________
Primary Channel Interrupted:	________	________	________
Firmware Downloading:	________	________	________
Make Busy Mode:	________	________	________
Service Line:	________	________	________
Non-answering Modem:	________	________	________
Short Holding Time Modem:	________	________	________
No Response:	________	________	________

Alert Priority is either **Critical, Major,** or **Minor**.
Duration is between 5 and 300 seconds in 5 second increments.
Exclude Alert is either **N** for don’t exclude or **Y** for exclude.

SYSTEM OPTIONS CONFIGURATION DATA INPUT SHEET

☐ Collect Alert History
_______ Days prior to purging History records. [0–90]

☐ Alert Acknowledge Required

☐ Print Alerts and Events
_______ Alerts per Page. [1–55]
_______ Hours between printing alert pages. [1–24]

☐ Collect Call Statistics
_______ Days prior to purging Call Statistics records. [0–90]

_______ Months prior to purging Summary records. [1–13]

USER PROFILE CONFIGURATION DATA INPUT SHEET

User ID:______________________________
Password:______________________________
Comments:______________________________
____

Functional Capabilities

☐ Configuration
☐ Tests
☐ User Profile
☐ Device Options

CUSTOMER NAME CONFIGURATION DATA INPUT SHEET

Customer Name:______________________________
Product Name:______________________________

PHONE BOOK CONFIGURATION DATA INPUT SHEET

Phone Number	Comments

COMMUNICATIONS CONFIGURATION DATA INPUT SHEET

Port Name: ____________________

(COM1, COM2, COM3, OR COM4)

TCP/IP Network Configuration Data Input Sheet

General

Where to install the software (c:\pcnms): ____________________

Location of network drivers (c:\pcnms):____________________

Software Serial Number (1493018):____________________

Software Key Number (dkjslmo):____________________

Network Interface Name (Ethernet0):____________________

Network Interface Type (Ethernet):____________________

Workstation

Internet Address of Workstation (192.0.2.4): ____________________

Unique Node Name (Largo Bld. P):____________________

NMS Server(s) Name (6700 Bld. P):____________________

NMS Server(s) IP Address (192.0.2.2):____________________

SNMP Manager

Internet Address of Manager (192.0.2.2):____________________

Unique Node Name (Largo Bld. A): ____________________

LAN/Hardware Interface

Adapter Vendor Name (Western Digital):____________________

Board Type (Ether Card Plus):____________________

Interrupt Level (5):____________________

I/O Base Address (0x300):____________________

SLIP Interface

Baud Rate (9600): ____________________

Flow Control (Hardware):____________________

Modem Type (Hayes compatible):____________________

Port (COM 1):____________________

Telephone Number (1-813-530-XXXX):____________________

Optional

Subnet Mask (255.255.255.0): ____________________

Default Gateway (192.0.2.254): ____________________

Glossary

access security	A major alarm signifying that a dial access security alarm is active. This is caused by accessing the security information via the front panel.
ACR	Allowed Cell Rate. In ATM, a traffic management parameter that sets the cell transmission rate for a connection based on network traffic conditions.
ADp	Advanced Diagnostic protocol. An enhanced diagnostic communication protocol used with the 6700 Series NMS and with certain front panel diagnostic functions.
agent	A software program housed within a managed network device, such as a host, gateway, or terminal server. An agent stores management data and responds to the manager's data requests.
agent (SNMP)	A software program housed within a device to provide SNMP functionality. Each agent stores management information and responds to the manager's request for this information.
alarm	An abnormal condition affecting modems, multiplexers, and data services units, usually requiring attention. Major alarms indicate a service disruption; minor alarms are less severe, but are indications of a developing problem.
alert	An occurrence of interest within the network. Alerts include alarms and change of status experienced by modems and data service units, as well as alarms experienced by multiplexers, and event messages reported by multiplexers.
alert group	A pre-defined collection of alerts used to manage alerts for filtering purposes. An alert group may consist of one or more alerts.
alert monitor	Displays the current alerts reported by NMS. Access the Alert Monitor window by selecting the Displays menu via the Main Menu.
alert priority	A term that indicates the severity of the alert condition. Three levels of alerts, ranging from most severe to least severe, are available: critical, major, and minor.
alternate port	The unused Port 1, either the V.35 or the EIA-232-D interface, that provides an aggregate data path for an external dial backup unit.
analog signal	A type of signal composed of continuously variable values, used to transmit voice or data over telephone lines.
answering	One of a device's internal operational modes that indicates the device is receiving a request to connect.
APL	Analog Private Line. The private circuit used for data transmission. Also called 4-wire private line, private line, or leased line.
area name	The name of related device options (group) contained within the device.
backup	The process of preserving copies of files on a different drive, directory or media to protect against the destruction or loss of the original files in the event of hardware or system failure.
BERT	Bit Error Rate Test. A local pattern test used to analyze the network circuit that causes the device to transmit and monitor for a test pattern. Both the control and tributary devices must be connected to the network.

busied out	One of a device's operational states. When a device is in the busy out (or make busy) state, it will not be able to answer calls. If the busied out device is on a rotary, the rotary will skip the device when servicing incoming calls. A device that has its dial line busied out may switch to the service line for further use.
cabinet	A structure that houses carriers (usually a maximum of six).
cabinet name	Designates the name of a cabinet in the network.
carrier	The COMSPHERE 3000 carrier is a rack with 17 slots; one control slot (for a Shared Diagnostic Unit) and 16 device slots.
carrier name	Designates the name of a carrier in the network.
client	A device that receives a specific service, such as database management, from a server.
CMI	Control Mode Idle. A control signal sent over the DDS line to indicate that no data is being sent.
color group	Network information that you monitor using the NMS system's color code (such as alerts, statistics, or DTE signals). A color group is made up of elements of information, each having an assigned color.
COM port	Communications port. A computer's serial communications port used to transmit to and receive data from a modem. The modem connects directly to this port.
community name	An identification used by an SNMP manager to grant an SNMP server access rights to a MIB.
COMSPHERE	A proprietary product family name and a registered trademark of Paradyne.
configuration	The arrangement of a system or network as defined by the characteristics of its functional units.
configuration change notify	A CCN condition indicating that the configuration options (software options) have been changed.
connected	The state of having one device linked to another, via a voice frequency line, for exchanging data.
contact name	The name of a person associated with a specific site or device that should be contacted if there is a problem or question.
control	A device that is, for diagnostic purposes, at the logical head of a hierarchical network. It is the unit from which tests and commands are issued to other units on the same circuit. There is only one control per link.
control channel (CC)	The diagnostic interface between a network management system and a network device.
critical alert	The highest priority alert reported by NMS.
CSU	Channel Service Unit. A device that connects service user equipment such as a DSU to the local digital telephone loop, protects the line from damage, and regenerates the signal.
CTS	Clear To Send. A signal indicating that the device is ready for the DTE to transmit data. Usually occurs in response to Request To Send (RTS).
customer name	The name of your company (maximum 40 characters) that is displayed at the top of NMS generated reports.
daisy chaining	Connecting the COM port of one device to the AUX port of another device to provide SNMP connectivity.
dBm	A decibel referenced to one milliwatt into 600 ohms. This unit measures relative signal power.

DBM	Dial Backup Module. The optional internal ISDN BRI feature that provides automatic dial backup and service restoration of failed digital circuits. Provides an ISDN U-interface.
DCD	Data Carrier Detect. A signal passed from a local modem to a local DTE when the modem has received an acceptable carrier signal over the phone line (also known as RLSD, received line carrier detect).
DCE	Data Communications Equipment. The equipment that provides the functions required to establish, maintain, and end a connection. It also provides the signal conversion required for communication between the DTE and the network.
DDD	Direct Distance Dialing. Telephone exchange service, the public switched telephone network (PSTN) that enables a telephone service user to access telephone lines without operator assistance.
DDS	Digital Data Service, such as DATAPHONE Digital Service or ACCUNET Spectrum of Digital Services, that provides private digital communication circuits.
default	A factory-preset value that is assumed to be correct unless changed by the user.
device	A standalone or carrier-installed circuit card.
device failure	A condition indicating that the device has failed self-test or has detected an internal failure. Service or replacement is required.
device group	A user-defined category that identifies a set of devices.
device name	A unique label (maximum 15 characters) that identifies the device. The device name must be unique to all other network element names (sites, carriers, devices, device groups, cabinets, and models).
device options area	A memory location in a device that stores device configuration option information.
dial	A device operating on a Public Switched Telephone Network (PSTN) line and requiring a dialing method and protocol to conduct data transmission.
dial backup	One of a device’s operational states that indicates a dial/leased device is using a dial line rather than a leased line to complete its communication.
dial backup active for APL	A condition indicating that dial backup is active for the leased or Analog Private Line (APL) devices.
dial standby	One of a leased-line device’s operational states. The Dial Standby mode allows the device to switch back to leased-line operation while still maintaining the dial line.
dial tone	Dial tone test was enabled and test failed.
digital loopback test	A local digital loopback test that connects the device’s receiver output back to the transmitter input. This test disrupts the transmission of primary data.
disabled	The modem’s DTE (Data Terminal Equipment) port transmission has been disabled.
distributive diagnostics	Allows device polling to be changed from continuous (over a fixed diagnostic connection) to intermittent. A start poll interval and poll duration can be set via the 6700 NMS to control how often and for how long devices are polled. Alarms will only be reported when the distributive devices are being polled.
DSR	Data Set Ready. A signal from the modem to the DTE that indicates the modem is turned ON and connected to the DTE.
DSU	Data Service Unit. Data communications equipment that provides timing, signal regeneration, and an interface to data terminal equipment. A subrate DSU/CSU is normally referred to as a DSU.

DTE	Data Terminal Equipment. The equipment, such as a computer or terminal, that provides data in the form of digital signals for transmission.
DTE alarm	A message signifying that one or more of the DTE signals is in alarm mode.
DTE signals	The signals associated with Data Terminal Equipment (DTE) communications to a device. Examples: Clear-to-Send, Data Terminal Ready.
DTMF	Dual-Tone Multi-Frequency. A signaling method using two voice frequencies to designate the tones used for touch-tone dialing, as distinguished from pulse dialing.
DTR	Data Terminal Ready. A signal from the DTE to the modem, sent via Pin 20 of the EIA-232 interface (V.24 circuit 108/1, /2), that indicates the DTE is turned ON and connected to the modem.
duration filter	The minimum number of seconds a condition exists before NMS reports it as an alert. The range of values is from 5 to 300 seconds.
EC	Error Correction. Common error-correction protocols are V.42, MNP4, MNP 10, and ETC.
edit area	A temporary work area used to view and change configuration options from the DCP without impacting modem operation.
EIA	Electronic Industries Association. This organization provides standards for the data communications industry to ensure uniformity of interface between DTEs and DCEs.
end-to-end test	A pattern test run on local and remote devices simultaneously.
Enterprise MIB	MIB objects unique to a specific company's devices.
ES	Errored Seconds. A second with one or more ESF error events (one or more CRC6 error events or OOFs).
exclude alert	An alert control option that is set to indicate whether or not you want the device(s) to report a specific alert type.
external alarm	An alert-control DSU feature in which the DSU detects a positive voltage on either Pin 23 or 19, triggering an alarm.
facility	A leased or dial transmission line.
facility alarm	An alert that NMS displays indicating that the device has detected an abnormal condition on the facility (line) that could cause data errors. The facility alarm only applies to leased or Analog Private Line (APL) devices.
filter	A rule or set of rules applied to a specific interface to indicate whether a packet can be forwarded or discarded.
firmware	Software that has been temporarily or permanently loaded into read-only memory.
firmware downloading	A condition indicating that the device is currently receiving download firmware or transmitting firmware to a remote device.
group busy	All devices assigned to a hunt group have been connected for a specific time.
hunt group	Devices grouped together and viewed as a unit via Hunt Group Monitor commands. These commands allow viewing of the status of the devices in the group, acknowledging and clearing of alerts, displaying of information about a particular hunt group or device, and placing or removing a device from the busy state.
idle	One of a dial line device's operational states that indicates an installed device is not currently in use.
Internet	The worldwide internetwork, which predominantly uses the TCP/IP protocol.
inventory code	The status of the device in the network.

leased	A device operating on a private line where no dialing is necessary to make the connection. A dial device can be configured to run on a leased line. Some local leased-line devices can be switched over to dial mode while attached to a leased line.
LL	Local Loopback. A diagnostic test in which data is looped through data communications equipment from the DTE interface and back to the DTE.
local analog loopback	A test in which the modem’s transmit voice frequency (VF) signal is looped to its receiver.
local device	A device installed in the carrier(s) connected to the PC.
local loopback test	An analog loopback test that connects the device’s transmitter output back into the device’s receiver input. The local loopback test is disruptive and will disconnect the local device from a remote device. The remote device remains disconnected from the local device after the test.
LSD	Line Signal Detect. A signal between the DTE and the device indicating energy exists on the transmission circuit.
major alert	An NMS alert that is a higher priority than Minor and a lower priority than Critical.
make busy mode	A condition indicating that the device is holding the dial line busy to prevent receiving calls.
MB	Megabyte or megabytes. A unit of memory measurement equal to approximately one million bytes (typically 1,048,576 bytes).
MCMP	MultiChannel MultiPoint. A circuit card that enables the support of up to six independent applications over a single multipoint digital facility. The MCMP capability can support up to 40 tributary DSUs, each optioned with an MCMP card.
MIB	Management Information Base. A database of managed objects used by SNMP to provide network management information and device control.
minor alert	The lowest priority alert reported by NMS.
MNP	Microcom Networking Protocol. Levels 2-4 of this protocol, similar to ITU V.42, detect and correct data errors caused by telephone line noise and signal distortion. Level 5, similar to ITU V.42bis, includes data compression.
MSD	Modem Sharing Device. Allows from 2 to 4 physical ports to share a communication channel.
network address	A unique number associated with a host that identifies it to other hosts during network transactions. This is the network portion of an IP address. In the Internet, assigned network addresses are globally unique.
network map	Composed of two windows displaying the condition of all or part of the network. The Geographic Map window displays the geographic location of the network elements. The Network Hierarchy window displays the hierarchical organization of the devices at each site. Access the Network Map by selecting the Displays menu via the Main Menu.
node	A connection or switching point on the network.
non-answering modem	A condition indicating that the threshold for the number of non-answered calls per sample has been exceeded.
no response	A condition indicating that NMS is receiving no response from a local control device.
off-hook	The state of a telephone or modem that is connected to the network.
OID	Object IDentifier. Used in SNMP.
online	The state of a modem that is connected to and communicating with another modem.

operational state	One of ten codes indicating the current device status. The ten Operational States are Idle, Ring Indicate, Answering, Talk Mode, Off-Hook, Dialing, Remote Ringing, Online, Dial Backup, and Dial Standby.
out of threshold	An alarm indicating that one or more of the analog parameter thresholds has been exceeded. The probable cause is poor line conditions or improper threshold settings. Thresholds may be set through NMS commands.
password	An 8-character field (case-sensitive) used during login procedures. You can only display your own password unless you have User Profile privileges.
pattern test	A local test causing the device to transmit and monitor for the BERT test pattern. This test disrupts the transmission of primary data.
PDU	Protocol Data Unit. A message containing protocol-specific information.
phone book	Contains NMS telephone numbers that you want to record.
phone directory	A device's internal telephone number listing.
poll list	A list containing the network management addresses of downstream modems.
polling	The continuous process by which NMS solicits network information network.
port name	The label that designates the PC serial port (COM1, COM2, COM3, or COM4) that NMS uses to connect the PC to the network devices.
primary category	A field displayed in the Selection Browser. The Primary Category field allows you to select the highest tier of device groupings that you want to include in your device selection. By selecting a Primary Category, you select all device groupings in that tier and below. The following list is the hierarchy of device groupings from highest to lowest in the NMS system: sites, cabinets, carriers, models, device groups and devices. Other device groupings (local devices and remote devices) are on the same hierarchy level as devices.
primary channel interrupted	A condition indicating that the remote device is being used for diagnostic testing. Since diagnostic testing uses the primary data channel, the device cannot transmit or receive data while in this state. Diagnostic testing can be started from either the device's front panel or from an NMS command.
primary contact	The person to call at the device's location.
proxy agent	The SNMP proxy agent can monitor and control nodes that are not directly manageable.
PSTN	Public Switched Telephone Network. A network shared among many users who can use telephones to establish connections between two points. Also known as dial network.
remote device	A device configured within NMS that is not directly connected to the PC where NMS is installed (see Local Device).
remote digital loopback test	A request from the local device to the remote device to perform a remote digital loopback. This test connects the remote digital receiver output back into the transmitter input. This test disrupts the transmission of primary data.
remote ringing	One of a local device's operational states that indicates the remote device is receiving a request to establish a connection.
reset	An initialization of the device that occurs at power-up or in response to a reset command.
RFC	Request for Comments. One of the documents published by the Internet Engineering Task Force that describe Internet protocols and policies.
ring indicate	A local loopback test and a pattern test performed on a local device you specify. The self-test is disruptive and will disconnect the local device from a remote device. The remote device remains disconnected from the local device after the self-test.

RMON	Remote MONitoring. A management standard that was developed to provide traffic statistics and analysis for comprehensive network fault diagnosis, planning, and performance tuning.
RS-232	An Electronic Industries Association's standard for a low-speed, 25-position, DCE/DTE interface.
RTS	Request to Send. A signal from the DTE to the device, indicating that the DTE has data to send. V.24 circuit 105.
SDU	Shared Diagnostic Unit. A circuit card installed in Slot 0 of the COMSPHERE 3000 Series Carrier that provides an interface between an optional SDCP and/or network management system and the devices in the carrier.
selection browser	A dialog box that you use to scan the device names configured in the network management system. You can create a device selection list with the Selection Browser to access devices you want to display or control. The Selection Browser is only accessible in certain areas of the NMS.
selection list button	Gives you access to a drop-down list box. A selection list button appears to the right of an input field. Scroll through the existing list of values to access the value you want, then click on your selection.
self-test	A local loopback test and a pattern test performed on a local device you specify. The self-test is disruptive and will disconnect the local device from a remote device. The remote device remains disconnected from the local device after the self-test.
serial number	A unique manufacturing number (maximum 8 numeric characters) found on the device. This is a required field for remote dial devices.
service line	An additional capability for DDD NIMs. This feature permits an extra dial line to be connected to a COMSPHERE 3000 Series Carrier. It can be used for NIMs or as a backup line when the primary line goes down.
short holding time modem	A condition indicating the average holding time has dropped below the threshold number of seconds.
site name	Designates the geographic location of the network device(s).
SLIP	Serial Line Internet Protocol. Protocol for serial operation on an internet.
SMI	Structure of Management Information. SMI presents a prefix tree with defined object identifiers.
snapshot	The data collected by NMS to describe the status of one or more devices in the network at a specific point in time.
SNMP	Simple Network Management Protocol. Protocol for open networking management.
SNMP agent	An application program that facilitates communication between an SNMP management system and a device.
streaming terminal	An alarm indicating that the modem is in an antistreaming condition. The RTS input to the modem was held ON for a period exceeding the time selected by the RTS antistream configuration option.
sub-normal operating speed	A condition indicating the leased or Analog Private Line (APL) device is operating at a speed below normal.
sub-tree truncation	Downstream health and status information has been truncated due overflowed system limits with large amounts of health and status information in the subnetwork. Recover this information by sending device health and status commands to specific modems.
system colors	The colors used by NMS to represent alert conditions, describe network status, and draw the Network Map.

talk mode	One of a device’s operational states that indicates the device’s dial line is currently connected for voice transmission.
TCP/IP	Transmission Control Protocol/Internet Protocol. The dominant protocol suite in the worldwide Internet, TCP allows a process on one machine to send data to a process on another machine using the IP. TCP can be used as a full-duplex or one-way simplex connection.
TDM	Time Division Multiplexer. A device that enables the simultaneous transmission of multiple independent data streams into a single high-speed data stream by simultaneously sampling the independent data streams and combining these samples to form the high-speed stream.
TDM failure	No reply from TDM or MCMP circuit card. The DSU periodically polls the TDM or MCMP circuit card for health and status. When the DSU does not receive a response from the TDM or MCMP, this message appears in the Health and Status report.
test mode	A condition indicating the device is currently in test mode, such as local loopback.
timestamp	The time and date a device reported an alert to NMS.
TM	Test Mode. An EIA lead standard for V.24 circuit TM, ITU 142; an output signal (DCE-to-DTE).
trap (SNMP)	A notification message to the SNMP manager when an unusual event occurs on a network device, such as a reinitialization.
tributary	A device that receives commands from other devices in the network.
tributary timeout	This indicates that the control DSU has not received a health and status update from the tributary DSU within the specified time.
unplaced	A site or device configured within NMS that does not have sufficient information for the system to automatically locate the device on the Network Map.
unsupported device	A device not directly supported by NMS for purposes of alert notification and network access. Specifically, unmanaged devices’ alerts cannot be interpreted by the NMS and the NMS cannot directly access the device’s tests and commands without using the cut-through software.
user file	A file you create to hold a specific configuration of device options. The purpose of this file is to record device options you can send to multiple devices. Device option information recorded within a user file is model specific and can be applied to any device of the same model type.
user ID	A unique number, created by your system, associated with each user name on a server system.
VF	Voice Frequency. The part of the audio frequency range used to transmit voice sound (usually 300 Hz to 3400 Hz). This band is used by the modem for its modulated signal.
VF Impairments	A type of voice frequency line distortion, such as receive level or frequency offset.
VF Threshold	Voice Frequency Threshold. The set of programmable parameters used to define acceptable ranges (thresholds) of voice frequency channel characteristics. An alarm generates when a measured voice frequency channel characteristic is outside the acceptable range defined by the threshold(s).
VF Threshold Alarm	A notification that a measured voice frequency channel characteristic is outside the acceptable range defined by the threshold(s).

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